No. 57 Winter 1987 $5 ($6 Canadian)

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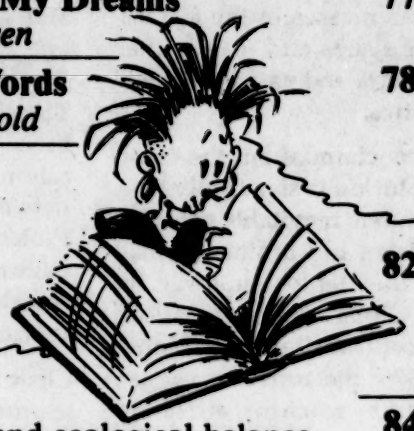

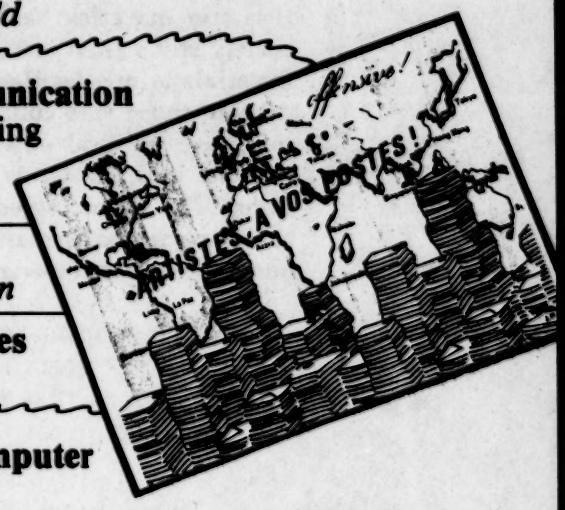

INFORMATION TAKEOVER

KEVIN KELLY

"The proliferation and convergence of communication channels is a technical revolution. It's also a political revolution."

That's Stewart Brand's explanation of the sustained fervor infusing a loose underground of social visionaries, artists and maverick hackers. As our society shifts from one governed by materials to one regulated by information, those who control information have political power. But controlling information is a slippery thing. The technologies of camera, copier, computer dismantle the time-honored notions of ownership. When ideas become the coin of the realm, and ideas can be multiplied and spread to the masses in the miraculous way of fishes and loaves, then pandoxes reign, and paradoxical will be the politics.

Almost every claim about the information revolution is steadfastly true. Small computers inevitably combine into oppressive big brothers; small computers inevitably empower individuals. Global communications make the world smaller; global information makes the universe bigger. Art is stunted by machine; artists are liberated by machines. The paperless office in the backwoods generates more tree-fed paper than ever. All true. All contributing to a fluctuating reality.

The bugaboos about copyright and who owns ideas (see "Bettered by the Borrower," p. 104) is one example of this oscillating signal. Being first with an idea doesn't guarantee power. Neither does being the largest. Big government and the military-industrial complex are amazed, confused, and anxious because they can no longer control the course of information any more than the little guy can. The circuit has its own life. The political revision begun by a communication underground like computer networks (see "The Bulletin Board Proletariat," p. 77) is to acknowledge the standing of this other thing now living among us: the circuit of information.

Charting the current is partially what Jeanne Carstensen (managing editor of the *Essential Whole Earth Catalog*) and I have done in this issue. We've used the most versatile technology we have to date, paper and ink. You'll notice gaps in our crude survey. When the current comes your way, send a signal back with what we've missed.

New York publishing doesn't see anything of this invisible uprising. We sent a couple of proposals to Publisher's Row, and got back a shrug. We're sitting on three times the amount we could fit into 144 pages. Perhaps it's time we slapped it all into a rough, home-brewed, reader-written, self-published, funky, oversize Catalog. Again.

Perhaps we are whistling in the dark. If the task of providing access to a knowledge economy strikes you as necessary, write us.

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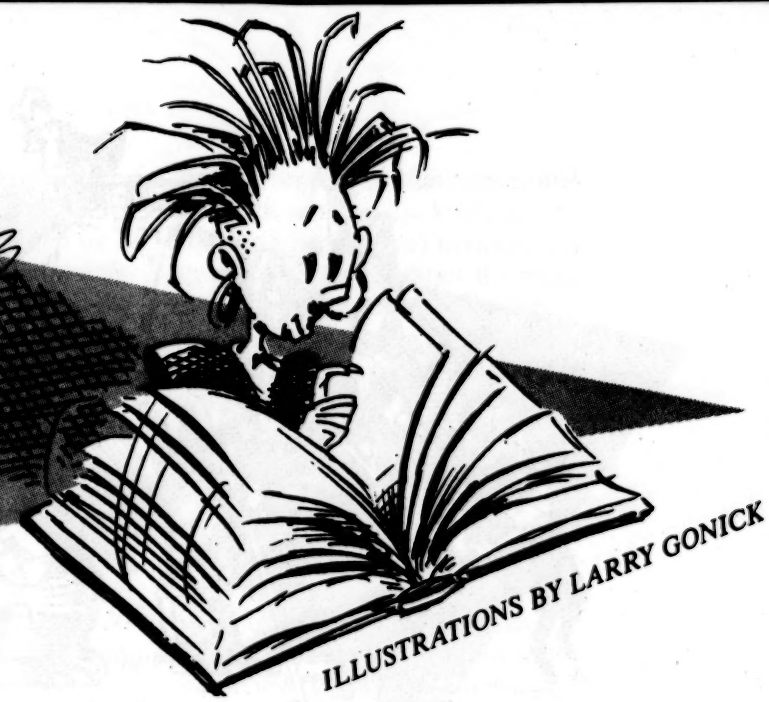
UNTRANSLATABLE WORDS



BY HOWARD RHEINGOLD

ILLUSTRATIONS BY LARRY GONICK

THINKING ABOUT the right kind of untranslatable words led me to an altered state of consciousness. It was like looking at the mundane elements of everyday life through a new kind of lens, which revealed to me dimensions in my familiar environment that I simply had not seen before because I didn't know how to look. That is precisely where the magic of naming the world, as first practiced by Adam in the garden of Eden, can exert a subtle leverage. Finding a name for something is a way of conjuring its existence, of making it possible for people to see a pattern where they didn't see anything before. I gradually came to realize that the collective human worldview is far larger than any one of our individual languages leads us to believe. After sifting through all the strange, delightful, horrifying and hilarious things that people use special words to name, I became sympathetic to the idea that people think and behave the way we do in large part because we have words that make these thoughts and behaviors possible, acceptable, and useful.

If you want to change the way people think, you can educate them, brainwash them, bribe them, drug them . . . or you can teach them a few carefully chosen new words. I believe that the memes and messages conveyed by the entries in these pages have the power to change the way you see the world (or, as the Germans would say, these words might warp your weltanschauung). Ultimately, I think, the foreign words collected and discussed here have the potential for transforming the way our entire culture sees the world. This mind-altering and culture-shifting side effect of adopting untranslatable words from other languages stems from a phenomenon that linguists call "linguistic relativity."

> . . . We dissect nature along lines laid down by our native languages. The categories and types that we isolate from the world of phenomena we do not find there because they stare every observer in the face; on the contrary, the world is presented in a kaleidoscopic flux of impressions which has to be organized by our minds — and this means largely by the linguistic systems in our minds. We cut nature up, organize it into concepts, and ascribe significances as we do, largely because we are parties to an agreement to organize it this way — an agreement that holds throughout our speech community and is codified in the patterns of our language.

The words quoted above were written by Benjamin Lee Whorf, an expert on American Indian languages. This passage from *Language, Thought and Reality*[1] is the heart of the theory that has come to be known as the "Whorfian hypothesis," which asserts that the world is experienced in different ways by different linguistic communities and proposes that the differences in language actually cause the differences in the way linguistic communities think. In other words, Whorf claimed that language is not just a neutral vessel for conveying thoughts, but is an invisible mold that actually shapes the way people think and perceive.

As I looked at the way people around me used words, and began to survey the anthropological and linguistic literature, I realized that certain words are like linguistic viruses — patterns of meaning that seem to propagate themselves throughout linguistic communities via mysterious, unofficial, ad-hoc channels, because a semantic niche in that community is crying out for a precise word. English is a hodgepodge of such words that have found their way into the language. When enough time passes, Hindi words like *pajama* or French words like *elite* simply become acceptable English.

There is an intermediate category, a kind of linguistic waiting room, consisting of words like *deja vu* (the French word for the feeling that one has experienced something before) or *siesta* (the Spanish word for a mid-day nap), that are widely used by English speakers,

---

People who learn a second language often experience a new part of themselves, a personality or set of perceptions coaxed out of them by the inner nature of the new language. Howard Rheingold's collection of untranslatable words from 44 different languages shifts our perceptions from as many perspectives.

His is a dictionary of both words and ideas. It works to reveal the cultural blinders with which we experience the world.

Only 16 of the 170 untranslatable words in Howard's forthcoming book, They Have a Word For It, *are excerpted here. (It'll be out in March 1988 from Jeremy P. Tarcher, Inc.) Howard is also author of three other books:* Tools For Thought *(Prentice-Hall, 1986),* The Cognitive Connection *(Prentice-Hall, 1987), and* Higher Creativity *(J. P. Tarcher, 1984). —Jeanne Carstensen*

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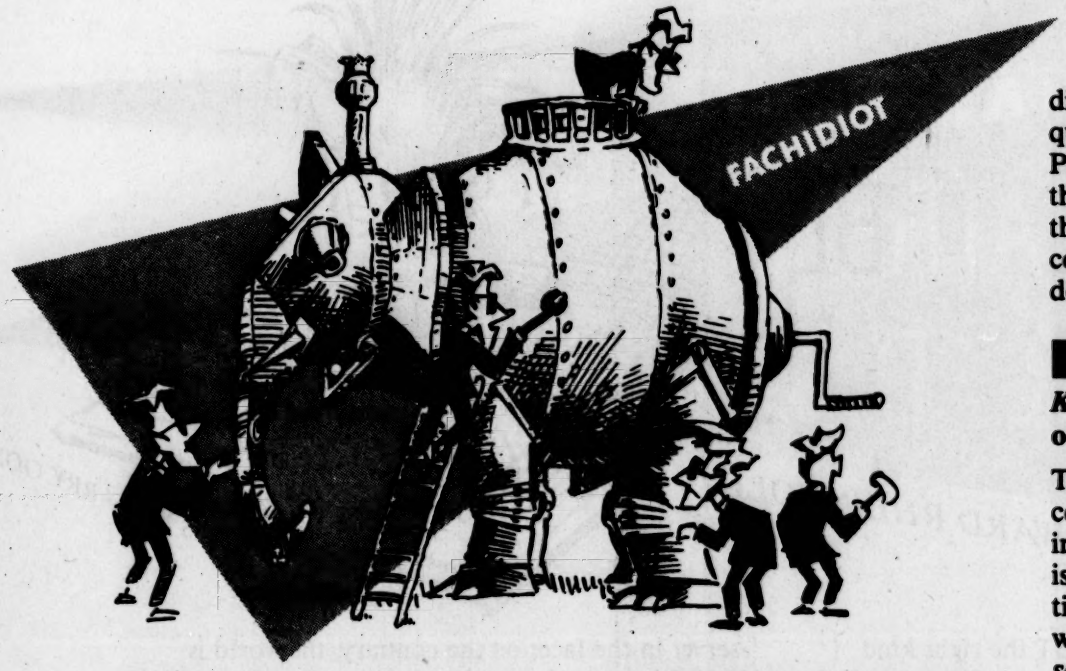


although they are still considered to be "foreign." I was looking for words that weren't yet part of the language (or queued up in the English-language waiting room), and which described concepts that might enrich our own worldview, or at least offer us insight into the ways the English language and Western culture restricts the way we think about ourselves and the world. And that is the agenda of this project: to make visible that which was previously unnoticed, to help us to see new characteristics and possibilities in ourselves, our friends, our coworkers. We all inherit a worldview along with our native language. Untranslatable words help us notice the cracks between the worldviews.

• The author is collecting more untranslatable words for a second edition. Send your suggestions to Howard Rheingold, c/o Jeremy P. Tarcher, Inc., 9110 Sunset Blvd., Los Angeles, CA 90069.

***Fachidiot* (German): Excessively narrow-minded technical expert. [noun]**

Some paleontologists assert that technical and occupational specialization is as old as the human species, but did not truly thrive until the birth of civilization: in order to irrigate the fields of the first agricultural communities in the Fertile Crescent, work crews (and overseers) were needed to dig ditches. Then, when the agricultural surplus allowed people to do something else besides scratching the ground and scouring the countryside for enough to eat, came the first building projects: ziggurats, pyramids, monoliths. That's where the stonemasons, architects, tax collectors, accountants, overseers, and laborers truly started specializing.

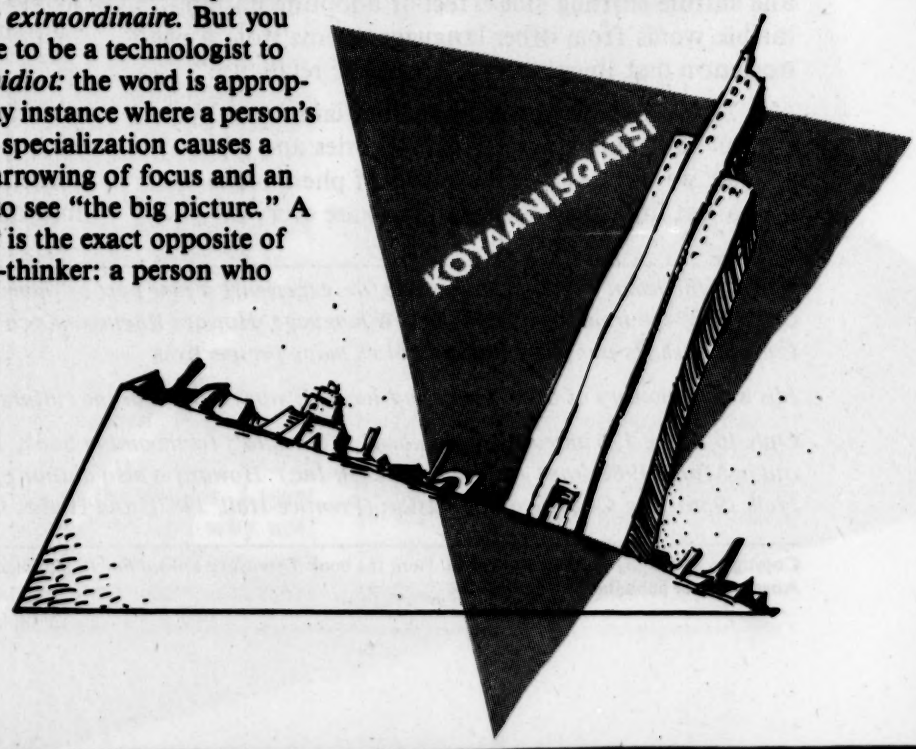
Now that we're beginning to notice how many of the "miracles of modern science," from bug sprays to disposable diapers, are messing up the system we all live in, usually because of a ghastly side-effect that wasn't foreseen by the technology's inventors, investors, consumers and boosters, the German word *Fachidiot* (FAHKH-ee-dee-oat) is ripe for pancultural adoption. The kind of person who can pack the transformers that hang on public power lines with a wonderful insulator like PCB, without realizing that it is extremely toxic to all the people who might step in it when it leaks, is only the most dangerous example.

This word could be adopted globally to refer to the way technicians can mishandle affairs when they don't trust the concerns of nonspecialists. The way the nuclear accident at Chernobyl in the Soviet Union or the chemical disaster at Bhopal in India came about indicated that *fachidiotic* thinking was out of control. The designer of the disposable but nonbiodegradable device known as the styrofoam cup was a *Fachidiot extraordinaire.* But you don't have to be a technologist to be a *Fachidiot:* the word is appropriate in any instance where a person's degree of specialization causes a radical narrowing of focus and an inability to see "the big picture." A *Fachidiot* is the exact opposite of a systems-thinker: a person who divorces the context and consequences from individual actions. Politically, the word refers not to those who believe the end justifies the means, but to those who are so concentrated on the means that they don't even think about the ends.

***Koyaanisqatsi* (Hopi): Nature out of balance. [noun]**

The Hopi, who live in the oldest continuously inhabited community in North America, have a word that is appropriate to the kind of situation that technology often causes when it is misapplied. *Koyaanisqatsi* (koy-on-iss-COT-see) means "life out of balance." It also means "a way of life that is so crazy it calls for a new way of living." This word does not necessarily imply an indiscriminate condemnation of technology; if the Native American tribes had been vaccinated against smallpox, for instance, before the first Europeans showed up, the history of the New World might have been written in Algonquin instead of Spanish and English. But *koyaanisqatsi* is perfectly applicable to the kind of misuse of technology that creates ecological or human catastrophes. For example, whenever DDT or other insecticides are used indiscriminately, the very pests they are intended to eliminate come back in force because the poison kills all but those who are immune (thus helping to breed an insecticide-resistant strain of insect), and also kills all the insect's natural predators. The hideous bustle of rush hour in megalopoli is *koyaanisqatsi.*

Antibiotics, which have saved millions of lives, have been misused to such an extent that there are now super-bacteria that are virtually immune to all normal antibiotics.



Hospitals have to be closed when they become infected with these supergerms, and all the linen and the physical plant has to be steam-cleaned. When artificial fertilizers render land infertile, antibiotics breed killer germs, and unchecked growth of sunbelt cities uses up underground aquifers that took millions of years to accumulate, the world is, unfortunately, *koyaanisqatsi.*

■

***Farpotshket* (Yiddish): Something that is all fouled up, especially as the result of an attempt to fix it. [adjective]**

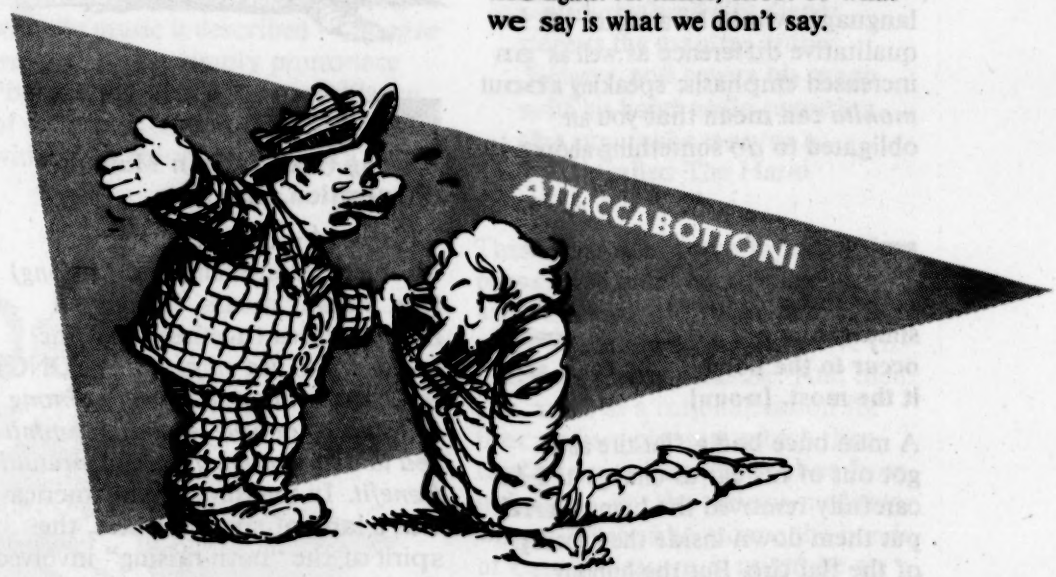
One of the most important linguistic categories of the technological age is the collection of terms that can be used to describe all the ways tools, machines, and systems can go wrong. Two terms that came from the military describe machinery or systems that have gone seriously awry: *fubar* and *snafu.* Apocryphal lexicography has it that fubar is an acronym for "fouled up beyond all recovery." and *snafu* is an acronym for "situation normal — all fouled up." Of course, it is probable that military men used a stronger word than "fouled." But these are rather general terms. Technology requires precise terminology.

The Yiddish word *farpotshket* (far-POTCH-ket, rhymes with "tar NOTCH set") has the degree of specificity required by modern, complex technology, for it refers to *something that is all fouled up, especially through repeated failed efforts to fix it.* If Rube Goldberg was a repairman instead of an inventor, he would be a master of the art. When something minor goes wrong with your car, for example, and you attempt to repair it and turn the damage into something major, you can say that your car is *farpotshket.* In a political sense, the fall of Richard Nixon started out as a "third-rate burglary" that got all *farpotshket* when the White House attempted to cover it up. The word has a satisfying onomatopoetic ring to it, which adds emphasis: "That software was slightly buggy before your programmers tried to fix it, but now it is royally *farpotshket.*"

■

***Attaccabottoni* (Italian): A doleful bore who buttonholes people and tells sad pointless tales. [noun]**

Words have the power to hypnotize, if they are wielded by a skilled hypnotist. Words have the power to enthrall, when they are spoken by a charismatic personality. And words have the power to put the most lively person to sleep, when they fall into the hands of that most dreaded conversational specialist — the bore. Volumes could be written about the many varieties of bore to be found in small towns in Indiana, villages in the New Guinea Highlands, or cocktail parties in Manhattan. Of the several differing schools of bore theory, all the competing factions agree that the worst of all is the *doleful bore, the kind who buttonholes hapless acquaintances or total strangers* who are too kind and innocent to flee at the first word, and proceeds to tell long



and pointless stories of misfortune, unhappiness, bad circumstances. The Italians have a word for this type. If you are trying to warn somebody to avoid even slight signs of recognition, including eye contact, tell your friend to "watch out for the *attaccabottoni*" (rhymes with "a lot of baloney").

The word literally means "buttonholer," and can be used as a verb. When you are referring to the unusually aggressive bore who succeeded in detaining you on the telephone on your way out the door, you can say you were *attaccatoed.*

■

***Mokita* (Kiriwina, New Guinea): A truth everybody knows but nobody speaks. [noun]**

In every culture and in many different kinds of social encounters from back-fence gossip to high-level negotiations, the words that are *not* voiced can be more important than the ones that are spoken aloud. People who share the same language, nationality, kinship, clanship, or other cultural heritage have special agreements about the meanings of words and symbols; they also have agreements about the meanings of unspoken words and other symbols that are hidden or alluded to but never directly displayed. Within a family, the alcoholism of a family member is an ever-present unspoken truth, just as the possibility of AIDS is an inevitable unspoken concern in a singles bar. "Unwritten laws" of many games, from the playground to the battlefield, govern the conduct of formal encounters. And in every speech act there is a dichotomy in the mind of each participant between public utterances and private thoughts. At times, most of what we say is what we don't say.

The old folk-story about "the emperor's new clothes" reveals that we in the West have long acknowledged the power of unspoken truths. But in English, we don't have a specific word to refer to unspoken truths. The Kiriwina tribespeople of the Trobriand Islands, however, use the word *mokita* (moe-KEE-tah) to refer to *the unspoken truths of certain social situations that everybody knows, but nobody talks about — directly.* This distinction is a social convention, but it is such a strong social convention that it literally alters the perceptions of the individuals within that society. Of course, sly allusions and other forms of disguised speech can refer to those unspeakable facts that everybody in a tightly-knit community tends to know — who cheated whom, who is sleeping with whom, who is out to get who, and the specific historical instances associated with each act. The use of indirect speech is raised to a high art in cultures like that of the Kiriwina, where direct speech about taboo topics can lead to violent death. ►

There are times when *mokita* helps shield people from truths they would rather not face, and there are times when it is simply an act of kindness to recognize it. If your brother or friend has a very slow child, or one that closely resembles his best friend, the whole subject is better left *mokita.* When people want to "get down to business." or to "stop beating around the bush," they often say: "but the bottom line is . . . ," thus referring indirectly to the unspoken religion of Western civilization (known as "worshipping the almighty dollar"). A heftier version of "bottom line," one which refers directly to a situation that everybody knows about but nobody talks about would be: "let's get down to the *mokita.*" The potency of this phrase, if accepted into the language, would be a matter of qualitative difference as well as an increased emphasis: speaking about *mokita* can mean that you are obligated to *do* something about it.

Uovo di Colombo **(Italian): A simple, obvious, idea that doesn't occur to the person who could use it the most. [noun]**

A man once had a flat tire and got out of his car to change it. He carefully removed the lugnuts and put them down inside the hubcap of the flat tire. But the hubcap tipped over and dumped the lugnuts into the storm drain. As it happened, the car was parked in front of a lunatic asylum, and one of the inmates, who had been watching through the fence, suggested to the hapless driver that he remove one lugnut from each of the other wheels, put the spare tire on, and drive to a service station. Admiringly, the driver said: "I never would have thought of that! How clever!" To which the asylum inmate replied: 'Well, I may be crazy, but I'm not stupid."

The point of this old joke is that sometimes the simple, obvious solution to a person's problem doesn't occur to him until it is pointed out. The Italians call this kind of idea an *uovo di Colombo* (oo-OH-voh dee koh-LO -boh), which, for some reason, is a literal translation of the phrase "Columbus' egg." The next time you wrack your brains for a *solution that is right in front of you,* instead of excoriating yourself or looking sheepish when you are caught at it, simply exclaim "what an *uovo di Colombo!*"

Rojong **(Indonesian): Mutual cooperation. [noun]**

This word is closely related to another Indonesian word *(gotong)* that literally means "to carry a heavy burden together," but the Indonesians use *rojong* (roy-YONG) to connote *the relationship among a group of people who are committed to accomplish a task of mutual benefit.* In the days when America was a land of small farmers, the spirit of the "barn-raising" involved the kind of mutual cooperation the Indonesians mean when they say "the villagers worked in *rojong* to build their new mosque."

Perhaps we could use a word like this in the modern world, where the need for some focused spirit of community cooperation has grown so acute that some ecologists have characterized the primary global problem as a community problem — "the tragedy of the commons."

The term goes back to the days when small farmers used a "common" area in the center of town to graze their cattle or sheep. As long as no members of the community decided to graze more cattle than their neighbors did, everybody got along. But when the town grew large enough so that people didn't relate to one another as members of a community, first one, then many, and finally too many individuals put their own welfare above that of the group and started grazing more cattle than the land could carry. The common areas all over the country became overgrazed and didn't do anybody any good.

We might consider using a word like *rojong* as a general-purpose word for a variety of situations: community gardens, urban neighborhood tree-planting committees, block parties, PTA or church projects, cooperative daycare centers, issue-centered political action groups, energy conservation, health practices — any activities in which individuals relate to one another within a cooperative, community framework.

Wabi **(Japanese): A flawed detail which creates an elegant whole. [noun]**

To many people who see the world through modern Western sensibilities, beauty is represented by the kind of technological sleekness, smoothness, symmetry, and mass-produced perfection that is usually associated with a sportscar or a skyscraper. A highly prized Japanese teacup, which might fetch tens of thousands of dollars from a collector, might be very simple, roughly fashioned, asymmetrical and plainly colored. It would not be uncommon to find a crack. The crack — the beautiful, distinctive, aesthetic flaw that distinguishes the spirit of the moment in which this object was created from all other moments in eternity — might indeed be the very feature that would cause a connoisseur to remark: "This pot has *wabi.*"

To say that we don't have a word for *wabi* in English is not to say that we are incapable of appreciating this kind of beauty. Perhaps more than any other major cultural belief system, aesthetics is *learnable;* that is, people can be trained to recognize beauty where they used to see only flaws. Indeed, the idea of deliberately introducing flaws into works of art is deeply rooted in Western traditions. Because of the Biblical injunctions against graven images, all depictions of humans in ancient Jewish sculpture were deliberately flawed. When mechanical weaving machines came along, the distinctive imperfections of Persian hand-woven rugs became hallmarks of quality. Which leads to the point of entry into Western culture. It isn't hard to foresee that *wabi,* or something like it, will become increasingly important as our economy changes from a "mass economy," in which wealth is based on large quantities of material resources and energy, to an "informative" economy based on the design and knowledge built into products and processes.[2]

As the economic conditions that created the "consumer society" change, we seem to be changing our buying habits. One such change is the shift from the goal of owning or consuming a large quantity of possessions or experiences to the goal of owning or consuming a smaller number of *higher quality* possessions or experiences. Some economists call this the "European-ization" of American buying habits. And one of the consequences of this change in what we perceive as valuable is the return of what used to be called "craftsmanship." That's where *wabi* comes in. One-of-a-kind items will grow increasingly more valuable than their mass-produced counterparts. If you want to ride the leading edge of the next inevitable aesthetic wave, look for slightly flawed, wobbly, rustic objects. And when someone remarks about your old piece of pottery or slightly funky wall-hanging, just smile knowingly and say: "Yes, it has *wabi,* don't you think?"

_____

***Mbuki-mvuki* (Bantu): To shuck off clothes in order to dance. [verb]**

One nearly universal characteristic of human societies, no matter how different they might be in other aspects, is the social ritual known here as "having a party." Whether life is hard or easy, people seem to relish the opportunity to gather for the express purpose of not working and not acting in their normal manner. In most cultures, some form of intoxicant is used to loosen inhibitions, because a party, by definition, is the kind of ceremony where people try to forget all the constraints and rules of everyday life, often with embarrassing results. And most cultures include some kind of dancing. When the people attending the party are single, the not-too-subtle overtones of mating ritual are added. And then, when the intoxicants have been circulating, and the people have been laughing and dancing, and the jukebox has been rocking, people who are ordinarily spectators in life suddenly get seized by the urge to perform.

It can be assumed that the Bantu-speaking people of Africa must have a respectable heritage in the partying department, since they have a word, *mbuki-mvuki,* to describe the act of shucking off all clothing that hinders one's party performance! At least one scholar believes that the Bantu term is the direct precursor for the name that migrated up the Mississippi along with the music it described — *boogie woogie.* If you simply pronounce "boogie woogie" with a semblance of a German accent, and say *mmm* with relish before each word: "MMMbookie MMMvookie," you can inform your friends about the newest/oldest term for *"I'm getting in a serious party mood."*

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***Narachastra Prayoga* (Sanskrit): Men who worship their own sexual organ. [noun]**

In the battle of the sexes, a nearly universal phenomenon seems to pop up all over the world, in every era: In every culture, there is a certain percentage of men whose actions seem to be dictated by the needs of their sexual organs. And a smaller percentage of this group seems to regard any action that brings them genital pleasure as an almost sacred act. In India, the land of a million gods and ten million ways of worshipping, there is a name for phallic obsession that takes on a religious intensity: *Narachastra Prayoga* (NAH-rah-choz-tra prah-YOE-gah) is the Sanskrit name for the ritual of religious masturbation.

Alain Danielou, a scholar of the pre-Hindu Shivaite religion, quoting the ancient scriptures known as *Puranas,* describes it thus:

> "Some Yogis worship their own sexual organ, that is, the god's presence in themselves. 'The rite of *Narachastra Prayoga* (the casting of the dart) [meaning the erection of one's own sexual organ] is carried out by using the thumb and index finger. The votary rhythmically *(japa)* repeats the mantra, *Nanas Shivaya,* and covers his organ with his hand while repeating the *tatpurusha mantra* . . . This is called The Hand of Shiva . . . '"

This phrase can come in handy for persons of either sex. Women can use it as a pejorative term, to call a man's attention to his obsessive fixation on genital pleasure. And men can use it as a rationalization for that solitary pleasure which they can't seem to keep themselves from indulging. For the serious meditator who can't seem to escape the bonds of carnal pleasure, it might be an authentic spiritual practice: say the proper words, put yourself in the correct spiritual position, and you can please your Creator as well as yourself.

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***Maya* (Sanskrit): The mistaken belief that a symbol is the same as the reality it represents. [noun]**

The word *Maya* is related to the English word "measure" because the root *ma* means "to measure or lay out," as in laying out the plan of a building. It can be defined as "the creation of forms." All the countless insects, goddesses, demons, and wise men are part of it, as are all the empires and planets and cycles of history. Those who know that the goal of Hindu theology is to achieve liberation from the bonds of illusion often mistake *Maya* for a strictly negative label denoting the illusions that cause suffering. But this is also an illusion, for the deeper meaning of the term is "existence." *Maya* relates not only to the endless play of forms and the void from which it

springs, but to *the dangerous attachments people tend to develop in relation to their conceptual maps of the world.* The founder of general semantics, Alfred Korzybski, called this tendency to believe one's measurements are the thing that they measure "the illusion of mistaking the map for the territory."

An ancient Hindu myth tells of a semi-divine ascetic, Narada, who was granted a boon by the god Vishnu, and who asked to be shown the secret of *Maya.* Vishnu, after warning the seeker not to inquire into this ultimate secret, told Narada to dive into a nearby lake. Narada emerged from the water as Sushila, the daughter of a great king. In due course, she married an ambitious king who fought many battles and conquered a great empire. Sushila led an exciting life in her various palaces, and bore many children and grandchildren. Toward the end of her life, however, a terrible dispute broke out between her husband and father, and they embarked on a bloody war that took the lives of Sushila's husband, her father, her sons, and her grandsons. With a heart-weariness that no mortal had ever known, she piled the bodies of her loved ones onto a great pyre, ignited it, then dived into the flames. She emerged from the lake that Vishnu had pointed out so many years ago, dripping wet, transformed back to Narada, a male ascetic.

"Who is this son whose death you are bewailing?" asked Vishnu, leading Narada out of the crystal pool of *Maya.* What Narada experienced, the god explained, was the surface of *Maya.* Not even the gods know its depths. Reality, by its nature, is never what it seems, just as a word is not the object it symbolizes and a map is not the territory it describes. Sentient beings must not lose sight of the void when they perceive the world as form, and to see the world as void is to lose attachment to the world of forms. *Maya* is a word that is ripe for adaptation here and now. The next time you see somebody in despair because of their cash-flow situation, or their love life, or even the world situation, you can remind them of *Maya,* of Narada's grief, and ask them "who is this (fill in the blank) you are bewailing?"

■

***Schaddenfreude* (German): Joy that one feels as a result of some else's misfortune. [noun]**

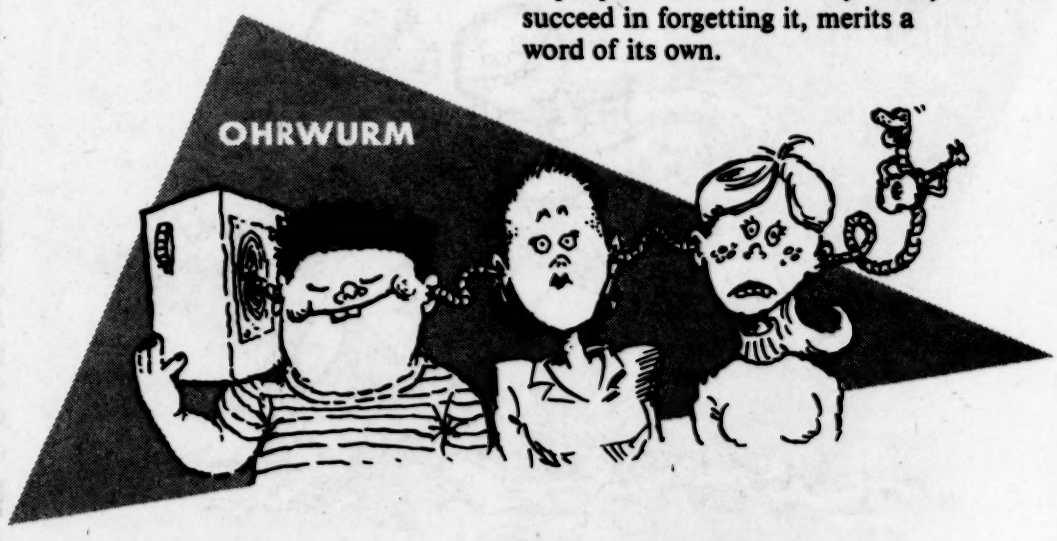
Why do people laugh at cartoons that show people slipping on banana peels? What is so funny about the way the Three Stooges bonk one another? One of the peculiar defining characteristics of the human race seems to be related to our strange and sometimes sadistic sense of humor. *Schaddenfreude* (SHOD-en-froyd-eh) is the German word for the kind of joy or laughter that is evoked by witnessing somebody else's pain or bad luck. It is one of those traits that sets us apart from the animals, but nobody has come up with a plausible reason for explaining why we possess it. Although it is possible that the sight of another chimpanzee (particularly a rival) in distress can be a pleasurable experience even to nonhuman primates, it takes a true human being to think there is anything *funny* about it. This trait is found among Americans and Brazilians, Manhattanites and Hottentots, and it isn't even confined to adults: any clown could tell you that the pratfall is the royal road to a toddler's funnybone.

Since this word strikes deep into the mysterious heart of the human condition, nobody is quite sure what the idea really means: because it names the phenomenon but does not explain it, *Schaddenfreude* can be used as an all-purpose reaction, tailorable to your feelings at the time you see an opportunity to use it. The next time somebody trips and spills his popcorn, and your companion bursts into laughter, then looks at you guiltily, you can choose a world-weary but essentially sympathetic expression and say, with a warmth tinged by sadness: "Ah. *Schaddenfreude.*" Or you can look condescending and say, coldly: "Ah. *Schaddenfreude.*" Unless you select neutrality and shrug your shoulders, adopt a puzzled facial expression and mutter, in a baffled tone: "Ah. *Schaddenfreude.*"

■

***Ohrwurm* (German): A tune or melody that infects a population rapidly. [noun]**

If a meme is a cluster of semantic symbols that propagates through a human population in a social manner — similar to the way a gene is a combination of biochemical symbols that propagates through a human population in a genetic manner — a sudden, wildly popular, new addition to "the hit parade" can be seen as a kind of meme. When the medium of radio and the recording industry that grew up alongside it created a system for propagating musical themes through a population, a new phenomenon became possible — the "overnight hit." The idea of a "hit" isn't untranslatable, since most cultures have a word for the winner of a competition. But the idea of a tune, a melody, a combination of musical sounds that seems to be on everybody's lips at the same time, that spreads through a society as rapidly as a respiratory infection, and seems to invasively seize and occupy space in people's minds until they finally succeed in forgetting it, merits a word of its own.



The Germans use the word *Ohrwurm* (rhymes with "door worm," where the "w" is pronounced like a "v") to denote these cognitively infectious musical agents. Whenever somebody complains to you that he just can't keep the latest pop tune from running through his head, tell him he can dispel it by calling it by name and by thinking about the original German meaning, which captures some of the mnemonically parasitical connotations of the word, for *Ohrwurm* literally means "ear worm" and is also used to refer to a kind of worm that can crawl into the ear. ■

1. *Language, Thought and Reality: Selected Writings of Benjamin Whorf* (Ed. by John B. Carroll, 1956; MIT Press, Cambridge, MA).

2. *The Next Economy* (Paul Hawken, 1983; Holt, Rhinehart and Winston, New York).

DRAGON BONES TO DATA BASES

BY RICK WEISS

RICH WITH SYMBOLISM AND an aesthete's delight, the Chinese language has long served as a national art form while doubling as a calligraphic barrier to foreign influence. In recent years, though, with an eye toward joining the global marketplace, China has learned how to digitize her ancient brush strokes onto floppy disks and dot matrix printers, and the artistic and cultural barrier is beginning to crumble. With an increase in computerization, however, is the highly stylized language also destined to crumble?

Like all languages, Chinese is an evolving symbology; it has survived, after all, the Bronze Age, the Iron Age and the Industrial and Cultural Revolutions. True, no Age before this one — the Information Age — has so blatantly tinkered with language itself. But probably no other language has presented such an enormous challenge to those who would reduce it to bits and bytes.

The story of how programmers are putting the Chinese language onto silicon chips begins in China's Honan Province with a tale about dragon bones.

Dragon bones — unusually smooth skeletal pieces, believed to be periodically shed by dragons — were popular Chinese medicinals. Ground into dust and simmered in a broth, they were used to treat a variety of ailments. But dragon bones were not all that easy to find, and lucky the farmer whose plow would unearth one so he could sell it to an apothecary.

Around the turn of the century, an observant customer at one of these pharmacies noticed some curious markings on the surface of his dragon bone. Subsequent investigation by Chinese scholars showed that other dragon bones bore similar inscriptions — inscriptions that proved to be some of the oldest on earth, and that today provide a glimpse of the world's earliest Chinese writings.

Dragon bones, it turns out, are actually ancient ox bones and tortoise shells, highly polished and apparently used as oracles by Shang tribesmen about 3,500 years ago. They heated the bones over fire after making their inscriptions, and interpreted the resulting patterns of cracks as answers to political or religious questions that shamans had asked in advance.

Today, 35 centuries later, about half of the roughly 2,500 characters found on Shang oracle bones are still translatable into modern Chinese. Some characters have been dropped and many new ones have been added, but what the dragon bones prove is that over the centuries, written Chinese has remained remarkably unchanged. It is easily the oldest living language on the face of the earth, and like any old-timer who has been through it all, the language seems hellbent on resisting technological taming.

Unlike just about every other language, Chinese "words" are not the product of a phonetic alphabet. There are no constructions from basic vowel or consonant sounds; rather, Chinese characters are independent, fully grown, meaningful syllables. Each character is composed of a pattern of strokes, often forming a sort of simplified picture of the character's meaning.

The character 人, for example, which means "person," resembles a man, while the origins of 馬, meaning "horse," can be traced to early pictographs resembling a roughly sketched horse. The roots of other characters, though, are not so easily pegged, and many have no pictographic story behind them at all. In fact, the Chinese language is properly considered ideographic, since each character conveys a unit of meaning, that is sometimes but not necessarily in picture form. Moreover, since each ideogram has no inherent pronunciation, the Chinese have spun off so many spoken dialects that regional groups can understand each other only in writing.

Today there are more than 50,000 characters in the Chinese language. While only 5,000 to 8,000 are in everyday use, that is still 250 times more than the 26 symbols that together provide English with its working vocabulary. This diversity explains the fundamental problem of getting Chinese "on line": there is no possible way to work quickly and efficiently on a keyboard that requires a minimum of 5,000 keys.

The problem has become acute in the past ten years, in conjunction with a growing international interest in the Chinese marketplace. Hugh Mah, president of a Canadian high-tech mineral exploration firm, remembers his first contract negotiating sessions in the People's Republic of China. It was 1980, and his company was on the verge of signing an agreement with the Chinese government. But with each improved draft a few words were changed, and the entire document had to be rewritten — by hand.

"We went there thinking that somebody would hammer this out on a typewriter or a word processor and we'd get a document," Mah recalls, "but in China you just can't do that."

Mah is but one of many Western businessmen who, in attempting to penetrate the nascent Chinese market, ran into a language barrier rivaling the country's Great Wall. In Mah's case, a contract was eventually crafted, but the process took longer than he had ever anticipated. And the next contract, he realized, would not be any easier, because the difficulty was rooted in the language itself. For although Chinese typewriters do exist, they are unwieldy contraptions with thousands of metal slugs — often requiring operators to use their feet as well as their hands. "Getting five or ten characters per minute is a major accomplishment," says Mah. It was simply more efficient to compose by hand.

Even more frustrating in this high-

My most personal computer, the one between my ears, is still attempting to master the Chinese language after two years of study. Chinese is easy. The difficult part is forgetting English. Whether China will forget Chinese in order to master computers is the 800-million-person question. I figure that if the hieroglyphic culture of the Pacific Rim can squeeze itself intact through the looking-glass of computers, then it'll continue to gush poetry and technology for a long, long time.

Traveling in Asia for a year to study this metamorphosizing culture, particularly its music, Rick Weiss wound up his apprenticeship in China by circumnavigating Tibet. A medical technologist with a degree in journalism, Rick is staff writer for the handiest weekly science magazine in print, Science News.

—Kevin Kelly

tech age, China's written language has until recently remained unintelligible to computers and word processors around the world. Recently, however, a brand new field of Chinese-language software has been pioneered by computer scientists and linguists from both sides of the Pacific in an attempt to make the Chinese language more computer-compatible. A look at this process of software development shows just how formidable the task has been.

It's a simple matter with a 26-character alphabet to touch-type a message, have the computer encode it, and send it on its way as pulses of light. Once a language is digitally encoded into pulses of light, cultural and linguistic differences are temporarily erased. Chinese poetry, American stock reports, and Soviet airline reservations can travel together at the speed of light, through laser switches that open and close a billion times per second, and none will pick up its neighbor's accent. Later, upon arrival at its destination, the message can be decoded and almost miraculously reinfused with all the subtlety and temperament that a written font can contain.

But Chinese has a problem at the "on-ramp" stage of this fiber optic freeway. With thousands of different characters to choose from in each sentence, every system of Chinese input has been too slow to take advantage of high speed telecommunication and information processing systems.

The input problem was first tackled by early designers of China's enormous telegraph system. The word "telegram" in Chinese is a combination of two written characters: the character for "electric" and the character for "newspaper." A trip to the "electric newspaper" office is a must in China, as the place exudes the atmosphere of exaggerated bureaucracy for which China has by now become so well known. If China (as the president of a Silicon Valley computer company recently observed) resembles an entire nation run by the U.S. Postal Service, then the Chinese Post & Telegraph Office is the heart and soul of the bureaucratic beast.

But despite the appearance of disarray — the jumble of paperwork, the meandering queues, the pens invariably out of ink — China's telegraph offices are home to one of the most reliable systems for transmitting Chinese characters over the wires.

Chinese telegrams are simply a series of numbers, in which every four digits represent a particular character. The

An oracle bone used by soothsayers of the Shang period (1786-1135 BC), who interpreted the meaning of cracks formed by red-hot rods. The inscriptions record the occasion and questions asked of the oracle by the king.

number 0147, for example, represents the character 大 ("big"), and 4891 represents the character 小 ("small"). With only ten keys, numbered one through ten, the system can encode close to 10,000 characters — more than enough for the average person to say what he must in a telegram.

But suppose that you, like one billion other people in the world, speak and write Chinese, and you want to type a letter to a Chinese friend. The four-digit system would be unwieldy at best.

For starters, you'd need to consult the code book for all but the most commonly used characters, and already you are confronted with a problem: for a writing system that is based upon pictures and not letters, there can be no such thing as alphabetical order.

To find the code for the picture-character "horse," should you look before or after the page that has the picture for "man"? Where in the book — or in a dictionary, for that matter — do you look for the character 下 (meaning "down" or "under")? Would it be before or after, or even anywhere near, the character 上 (meaning "up" or "above")?

Happily, most of China's thousands of characters are structurally related, making it possible to order them. Every Chinese character is made up of two main components — the so-called radical or root picture that determines the character's "family," and an additional array of up to two dozen pen strokes that are added to the radical in various patterns.

There are 214 radicals in modern Chinese, and these constitute the major headings of every Chinese dictionary or code book. You might as well give up on such reference books unless you can pick out a character's radical — which is buried somewhere in a flurry of strokes. Having done so and turned to the proper one of 214 headings, you proceed to count the number of additional strokes in your character and look for the subheading that matches that number. From there, you must scan through the entire section until stumbling across the exact character in question.

To find the meaning, for example, of the character 家, you first have to recognize the three-stroke radical, 宀. It is one of 35 three-stroke radicals indexed in the dictionary. Then, you must count the number of additional strokes (in this case, seven) and look under the dictionary subheading for characters with the radical that have seven additional strokes. As it turns out, there are seven different characters with that radical and with seven additional strokes (all of them somewhat different in one way or another). After a while, you'll come across the one that you want.

Tedious as this process can be, it is the basis for a passable system of typing Chinese using a 26-character keyboard. Such a system allows the typist or computer operator to actually "build up" a character from its component parts. The keyboard operator first types in an alphanumeric code for the desired radical, then types in a number of additional two- to five-digit codes — each one representing a pattern of strokes which, when combined, will appear as a single, complete character.

But you don't need a degree in computer science to realize that a system like this wastes valuable time. When a computer's abilities are measured in millions of operations per second, you don't want to be poking around on a numerically coded keyboard, putting the final touches on the upper left-hand corner of your next Chinese character.

The tedious nature of keying in Chinese is reflected in the word processing fees that are posted at the business executive center in Guangzhou's China Hotel. A business letter in English is four *Yuan* per page. In Chinese, the fee is 18 *Yuan* — more than four times the cost, and an explicit indication of the difficulties involved.

Unfortunately, in this age of cost-

Calligraphy by Jean Long.

Gia-miin Kelly

A print shop in Taipei, Taiwan, 1987. The typesetter is selecting type from an entire wall of characters.

benefit analyses, it is difficult to justify hanging on to a language that is more expensive to produce than some foreign script. So in order to join the age of laser disks and desktop publishing, the Chinese have been forced to do something that in any other age would be considered unthinkable: surrender to the relatively artless but globally recognized Latin alphabet, and learn to communicate with the world through a standard 26-character keyboard.

Such a compromise may seem unfair to the Chinese people, who, after all, invented the world's earliest moveable type. It is the Chinese, too, whom we can thank for developing paper, designed in those days not for daisy-wheel printers, but for brushes and inksticks that were themselves works of art.

Furthermore, in terms of the amount and quality of information that they contain, there is really no comparison between phonetic and ideographic writing systems. Written Chinese, especially when put to paper with its intended instrument, the brush, is a richly emotional script full of nuance and movement. Indeed, it is not only due to the limitations of keyboards that the Chinese have been slow to give up the brush. Penmanship and calligraphy are matters of great pride in China, and the idea of a letter-quality printer making every 子 exactly the same is, for most Chinese, beyond the pale of calligraphic good taste. Even a computer-generated Chinese character, however, contains more information than the purely phonetic symbols that cover this page.

Nonetheless, the Chinese government has as one of its long-term goals the gradual replacement of written Chinese with a Latin alphabet-based phonetic writing system. "The Scheme for the Chinese Phonetic Alphabet," adopted during the First National People's Congress in 1958, spells out that new language — an official transliterated version of spoken Chinese. The language, called Pinyin, provides a standard Latin alphabetized spelling for every spoken word in the Chinese language.

In fact, several different transliteration systems have been developed over the decades, most of them devised by Western scholars as an aid to translation and pronunciation. But now it is the Chinese, not foreigners, who are taking refuge in the Western alphabet. And after years of avoiding the controversial transition, the Chinese government is now insisting that Pinyin be taught in all of China's schools.

According to China's most recently released foreign-language text, Pinyin is being promulgated "to facilitate the learning of Chinese characters, help unify pronunciation, and popularize the common speech." Pinyin, notes the somewhat polemical text, "has for years been used among foreign learners of Chinese, and has been found much useful and helpful."

Useful and helpful as Pinyin is, it still leaves something to be desired for would-be software developers. To understand the problem requires a little background about spoken Chinese.

Mandarin, the official Chinese dialect spoken in the People's Republic, has a highly expressive sing-song quality, that is a more formalized part of the language than a foreign visitor might at first realize. The language makes use of four distinct tones (in addition to a fifth so-called "neutral tone"). Any given syllable may have four different meanings depending on the tone with which it is voiced.

This is a matter of great frustration to anyone learning Chinese as a second language. A novice may well manage to voice the desired syllable, but chances are good that the tone will be wrong — so something entirely unintended is said.

The word *mai* is a frequently cited example. When spoken with a dipping tone, it means "to buy." When spoken with a dropping tone, it means "to sell." It doesn't take much of an imagination to see how a tone-deaf visitor could get into trouble.

Similarly, *ma,* when spoken with a dipping tone, means "horse." But say it with a different tone and it refers to your mother, and in a neutral tone *ma* takes everything you've just said and turns it into a question.

The characters for these homonyms are written entirely differently, so there is no confusion in written script. With Latin-alphabet Pinyin, though, the words are spelled exactly the same, so it becomes necessary to include markings above each vowel to indicate the syllable's proper tone.

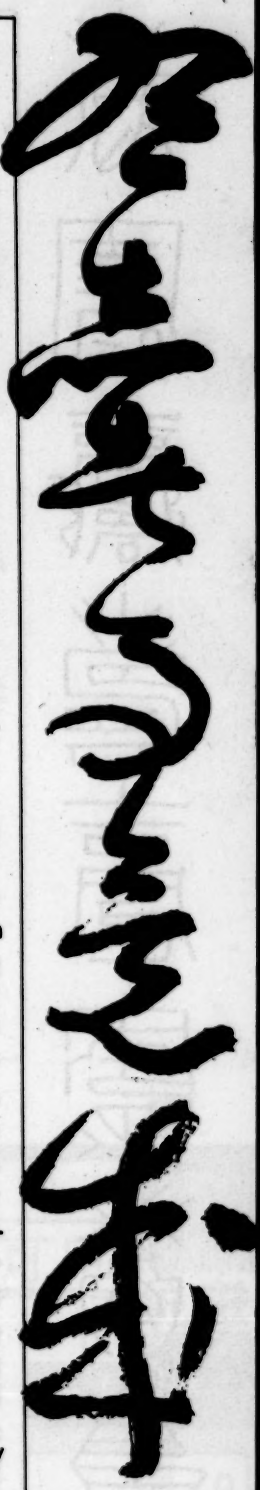
This is not an insurmountable problem for Pinyin touch-typists. In a number of currently used systems, the typist can either hit one of four shift keys to indicate first, second, third, or fourth tone, or type in a number (1, 2, 3, or 4) after each syllable to indicate, for example, whether you meant "buy" or "sell."

Once Pinyin is keyed in it's a very simple task for a properly programmed computer to convert the Pinyin into characters. Contracts can be typed and processed in Pinyin on a standard keyboard, then printed out moments later in full-form characters. Later, if it becomes necessary to change a few words, the Pinyin is easily word-processed, and a revised copy can be printed in characters again.

But in addition to the problem of written homonyms that sport different tones, there is a second aspect to the Chinese homonym problem — a final linguistic monkey wrench that has caused a lot more frustration than simply having to pay attention to differences in tones.

There are many Chinese characters that have entirely different meanings but which in spoken Chinese are pronounced *exactly* the same. In Pinyin then, these are not only spelled the same, but share the same tone as well. One estimate is that there are roughly 25 different characters for every Pinyin word with a given tone.

The syllable *yi* is an extreme example. When spoken in a dipping tone, *yi* can still have over 120 different meanings, represented by 120 completely differ-



Calligraphy by Professor Joseph Lo.

ent characters. The only way to tell just which *yi* a person intends to communicate is to know which *yi* makes sense in the sentence — something we humans do automatically.

But what about the computer? When the Pinyin word *yi* is typed into the computer (specifying with a number key that dipping tone is intended), the machine has no way of knowing which of 120 dipping-tone *yi's* you meant, and so has no way of knowing which of 120 characters to print. As if it weren't bad enough having to transliterate and type in tone numbers for every syllable, the computer is *still* not quite sure which *yi* the typist desires.

Of the many computer systems that convert Pinyin to characters, nearly all rely on a rather inglorious means of choosing the desired character: suppose you are using Pinyin to type a Chinese memo. Whenever (and it will be often) you type a word of Pinyin with multiple meanings, the computer will present you with a string of alternatives — a menu of characters all pronounced *yi*, for example — and you must manually choose the character you'd intended before being allowed to go on to the next word.

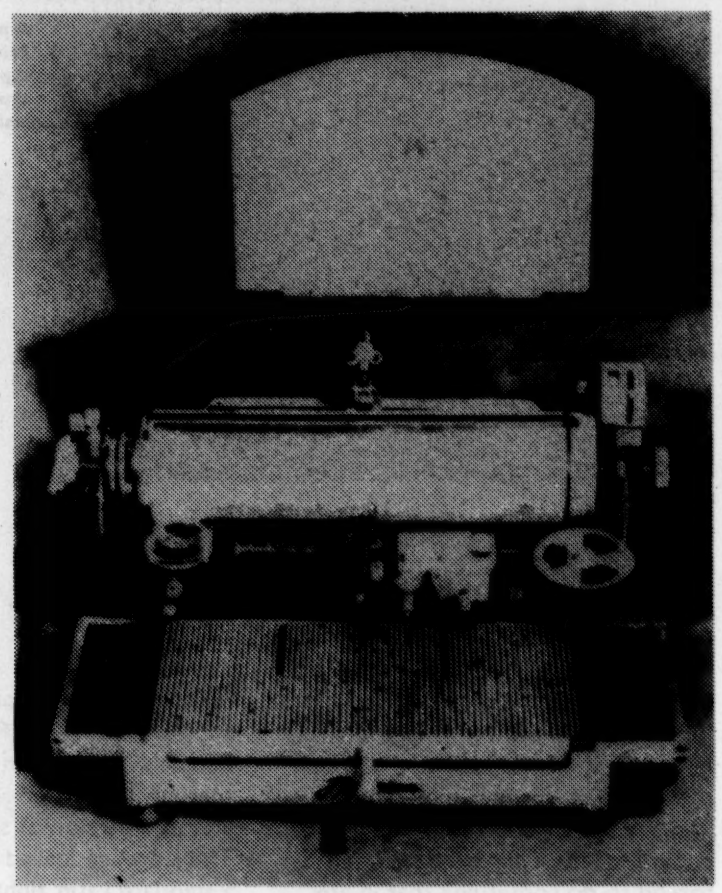
Clearly, this is a labor-intensive method for getting an otherwise intelligent machine to print in Chinese. Indeed, to some it was beginning to seem that the Chinese language had been completely dismantled in the name of progress — but to no real advantage.

Enter Peter Leimbigler, a Ph.D. Sinologist and language teacher living in Canada. Leimbigler saw the need for a Chinese-language software that could take advantage of the Latin alphabet, but that would more accurately reflect the Chinese linguistic *gestalt*. The problem with existing software, he realized, was that it broke the language down into byte-sized elements — but then failed to re-integrate those bytes into larger units of meaning. In a sense, Western software was too busy with the nuts and bolts of transliteration, and ignored the overall blueprint of the living Chinese language that had evolved so subtly over its thousands of years. So Leimbigler approached the problem in a more expansive way, and created a software program almost as elegant as the venerable language itself. His software suggests that even the most complex of languages can indeed be extruded through silicon chips without dooming its integrity or the culture that it serves.

In 1983, Leimbigler was working in British Columbia, training visiting Chinese students to become technical interpreters.

(Left) Twelve possible ways of writing the character Shou — "Long Life."

(Right) A typical Chinese typewriter — weighing 70 pounds. The typist must aim a strike arm at one of two thousand character slugs. Seven thousand less frequently used characters are kept nearby. The fastest Chinese typist averages only twenty characters per minute.



"I was constantly in need of a tool to write efficiently in Chinese text," he recalls. After some research, he found there was no such thing, and decided to develop his own.

Leimbigler was aware of work done by Joseph Becker and others at Xerox Corporation, that had partially solved the homonym input problem. In developing a multilingual word processor for Xerox, Becker's team dealt with characters in groups of two or three, instead of translating single characters individually. Many Chinese words are made up of two or more characters. Alone, a character may have several possible meanings, but when used with another only one choice may make sense.

The Chinese word for "airplane," for example, is composed of two characters: 飛 , pronounced *fei* (voiced in Chinese first tone) and 機, pronounced *ji* (also voiced in first tone). Literally translated, the two characters mean "flying machine."

But there are several different characters pronounced *ji* (first tone). One, for example, means "chicken" instead of "machine." Most Chinese word processors, not knowing whether you meant "flying chicken" or "flying machine" would insist that you stop typing and manually select the character *ji* you'd intended before allowing you to continue with your input. Becker, though, programmed his processor to know that when *ji* follows *fei* it's almost always meant to be "machine" *ji*, not "chicken" *ji*, and so automatically prints the character that means "machine."

Of course, the typist may in fact have been writing about a flying chicken, in which case he'd have to go back and correct the machine. But by looking at combinations of characters instead of individual ones, the Xerox system cut down on the number of manual choices, and made life a lot simpler for the computer operator.

Leimbigler went one step further. Instead of looking at small groups of characters, he looked at entire phrases — even sentences and paragraphs — and so began to teach his computer to "understand" context.

Leimbigler started by picking one category of speech that seemed important to Chinese translators: business communications. He then fed 500 sample Chinese business letters through a traditional Pinyin-to-character conversion program very much like the Xerox system, using a standard 26-character keyboard. Every time the machine chose an incorrect character, however, he programmed a new rule — based on sentence and paragraph context —

that would help the machine make the correct choice in the next similar situation.

"I had a portable computer with me all the time," Leimbigler recalls, "so each day when I was on the ferry between Vancouver and Victoria I would plug it in and have a one-hour teaching session for my machine."

After Leimbigler had spent a year observing mistakes and patiently correcting them, his system had "learned" to convert any business correspondence with a 99-percent accuracy rate. Moreover, because the machine was so good at recognizing context, Leimbigler found it no longer necessary to input tone marks — an advance that eliminated one key stroke for every syllable.

Leimbigler later trained his machine in less specialized areas of communication, by typing in articles from the *People's Daily*, China's official daily newspaper.

TianMa ("Heavenly Horse"), as the system has been named, never stops to ask which character is intended. Based on context, it makes its best guess and just keeps going. Input speed is limited only by the keyboard operator's typing speed — although later, as in any document, it's necessary to proofread and correct errors — estimated to be about one percent.

The system does have some inherent weaknesses. It's impossible, for example, for the system to guess the correct written character for proper names — but then, neither can a person. One can't know, for example, when meeting a Mr. Zhang, which one of 25 characters (all pronounced *zhang*) the man uses to write his own name. This is why, upon being introduced to a stranger in China, one's immediate question is "Which *Zhang?*" or "Which *Li ?*" To which Mr. Zhang or Mr. Li replies by tracing the proper character on the palm of his hand.

With the advent of systems like TianMa (others are close to market), the last major barrier to Chinese language conversion appears to be crumbling once and for all. A recent demonstration of the system at U.C. Berkeley's Institute of East Asian Studies drew a small but duly impressed crowd of Chinese and American scholars.

"Oh! Like magic!" exclaimed one Chinese student, after watching the computer correctly convert a linguistically challenging sentence he'd typed into the system. Soon the session turned into a game of "Beat the Machine," with students typing in Pinyin puns to see if the system would get the joke.

Some challenges were beyond any machine's powers of intuition. One student with a penchant for homonyms typed, *"You ren kan shu, you ren kan shu,"* meaning *"some people look at books, some people cut down trees."* With its database only aware that the word *shu* ("book") occurs more frequently in Chinese than the homonym *shu* ("tree"), and lacking enough context to differentiate *kan* ("to look at") from the homonym *kan* ("to cut"), the machine thought a moment and made its decision — and printed the characters for "Some people look at books, some people look at books."

Everyone laughed at the machine's lack of logic. Nevertheless, there was something very satisfying — something close to pride — in seeing those ancient Chinese characters alive and well, glowing green on the screen. ■

文件 编辑 显视 其它

Chinese Word Processors 系统文件夹

694K 在磁盘 86K可用

The complexities of Chinese have been married to the conveniences of personal computers. Of several Chinese software programs I know about, the Kuo Chiao program is the most affordable ($174). It allows four methods of entering words as characters: 1) by Pinyin (Roman letters); 2) by Chinese phonetics; 3) by radical and stroke order; and 4) by creating your own. Each way gives you 10,000 full-blooded Chinese characters (or newfangled simplified ones) ready to be word processed, left to right or up to down. Runs on an IBM compatible with a graphics card.

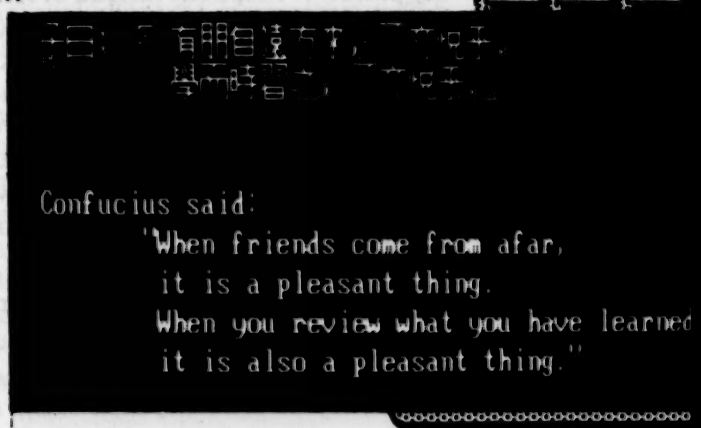
Far more elegant is the program TianMa (Heavenly Horse). It has similar input methods, but does sophisticated word analysis in which it will select the proper character based on the other words in a phrase (see preceding article). This semi-intelligence requires massive memory, so it comes with a dedicated RAM card for the IBM PC. You'll still need a graphics card. It will manipulate 9,000 characters, traditional or simplified. Costs $615.

The most graphic heavyweight Chinese word processor runs on the Macintosh. Called FeiMa (Flying Horse), the program boasts the usual way of entering characters as well as two others: pick one out of a scrolling dictionary, or type in the English word and it will translate. The graphic superiority comes at the price of a smaller glossary. The Mac Plus version ($400) comes with 2,400 words (enough to write a newspaper story), with an additional 3,080 words in the hard-disc version ($590). You can get a limited version that allows only Pinyin entry of 2,400 words for $200.

Apple has recently written a Chinese operating system for the Macintosh. It serves as a foundation for any kind of software program (spreadsheets, file managers, games and, of course, word processors) that might want to speak Chinese. Called ZhongWen (Chinese for "Chinese"), it is currently available only from Hong Kong or Taiwan Apple distributors, or through the Apple Programmers and Developers Association (APDA). —Kevin Kelly

Kuo Chiao Chinese Characters: Version 1.0. **$174** postpaid from Key International, 834 Henderson Ave., Sunnyvale, CA 94056; 408/247-6220.

TianMa: Version 2.06. **$615** postpaid from Pacific Rim Connections, 3030 Atwater Drive, Burlingame, CA 94010; 415/699-0911.



An original Confucian proverb and its English translation using the Kuo Chiao program. Surrounding this review is the desktop screen of the ZhonWen operating system on the Macintosh.

FeiMa: S version **$200**; regular version **$400**; SE version **$590**, all postpaid from Unisource Software, 23 East Street, Cambridge, MA 02141; 617/477-8383.

APDA: membership **$25**. 290 SW 43rd Street, Renton, WA 98055; 206/251-6548.

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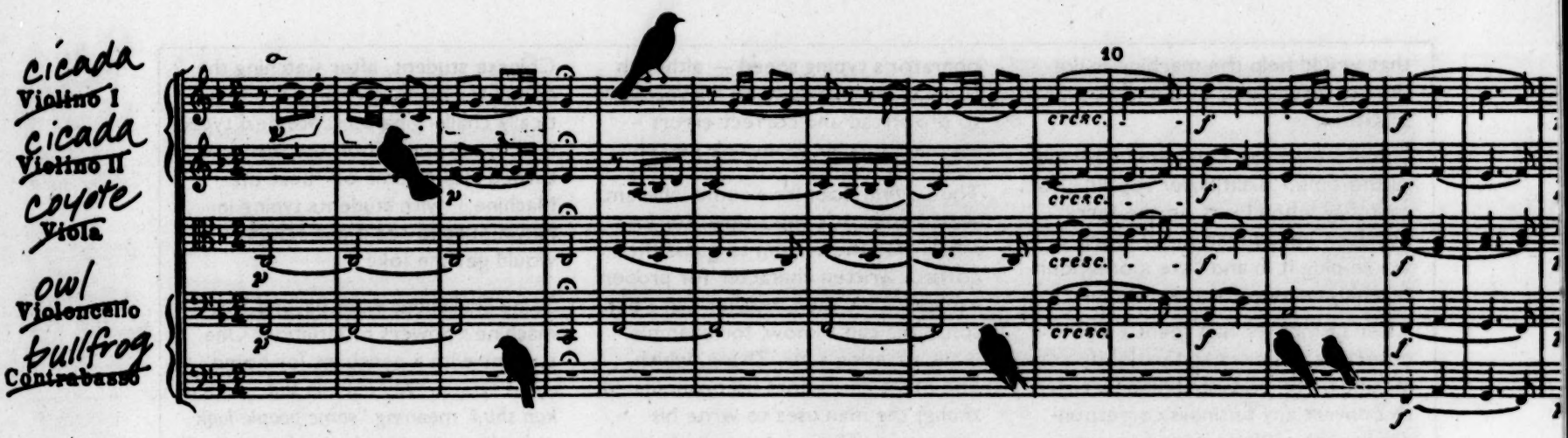


BIO-ACOUSTICS

Habitat ambience & Ecological balance

BY BERNARD L. KRAUSE, Ph.D.

THE PURELY BIOLOGICAL AMBIENT sounds of our habitat are extremely hard to find these days. All but obscured by human-induced masking noise, these creature voices are trying to tell us in their own way something we haven't yet learned. The message is subtle. The theme is life, itself.

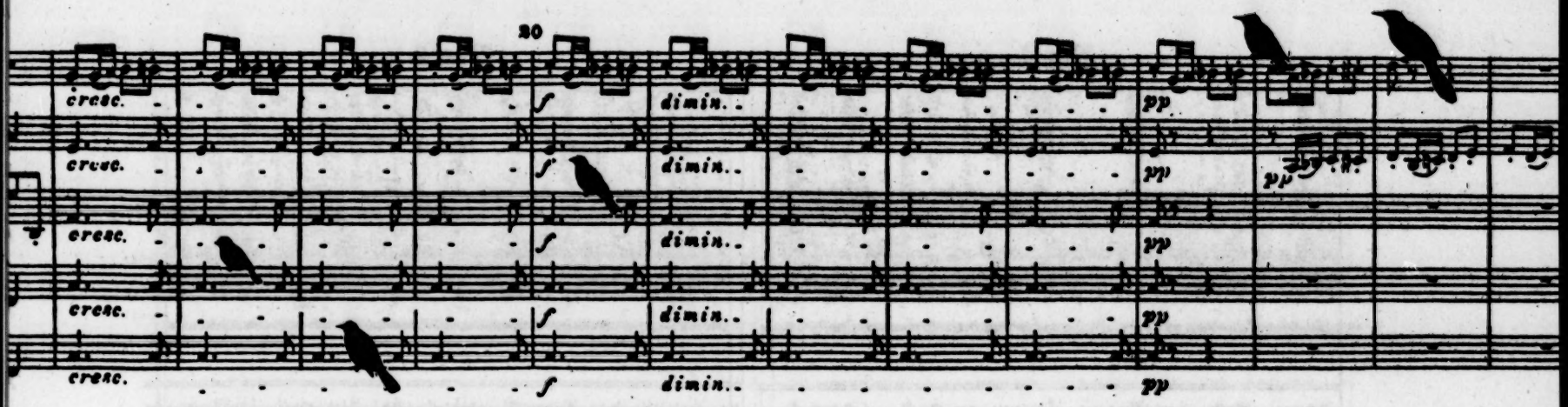
R. Murray Schafer, the Canadian sound environmentalist who worked on the World Soundscape Project during the '70s, said in reference to the importance of sound in our lives, "Everything that is ignored returns. And so progressive society finds itself afflicted with noise pollution, that is, with all the sounds it pushed out the door into vehement obscurity. Nature has thrown them back deliberately to force us to listen again. And this is happening. As literacy passes — telephone instead of letter, radio instead of newspaper, disc instead of score, cassette instead of typewriter — the visual-analytical world is pushed back into place and the sounding world moves forward. How many sounds are there in the universe? Precisely the number of things there are minus one. It takes two things to make a sound, but paradoxically, when two things collide only one sound is produced. Another case of one plus one equals one."

Hunter-gatherers knew well the importance of being able to emulate the sounds of birds and land animals. They had learned what animals instinctively knew. Their lives often depended on sound as well as sight. Even when there was little or no light, a message could always be transmitted through the air by sound. Aristotle was the first Western person to write about sounds underwater. And 2,000 years later, Leonardo da Vinci (1452-1519) found a way to hear the sound of ships at a distance and very probably the sound of marine mammals, too. The oceans were much quieter then. We hadn't yet subdued the fish of the sea.

It was about 50 years ago that the scientific community began to pay serious attention to the sounds of specific animals and not until the past ten years that natural ambient sound itself was thought to hold significant information. Biological sounds were first captured, retained, and studied in the late 19th Century when the wire recorder was invented. But those early audio tools were all but impossible to handle in the field; their frequency response was limited and the sound quite distorted. It wasn't until the 1960s that reel-to-reel and cassette recorders compact and well-calibrated enough for field use were manufactured. This event opened up the field of bio-acoustics.

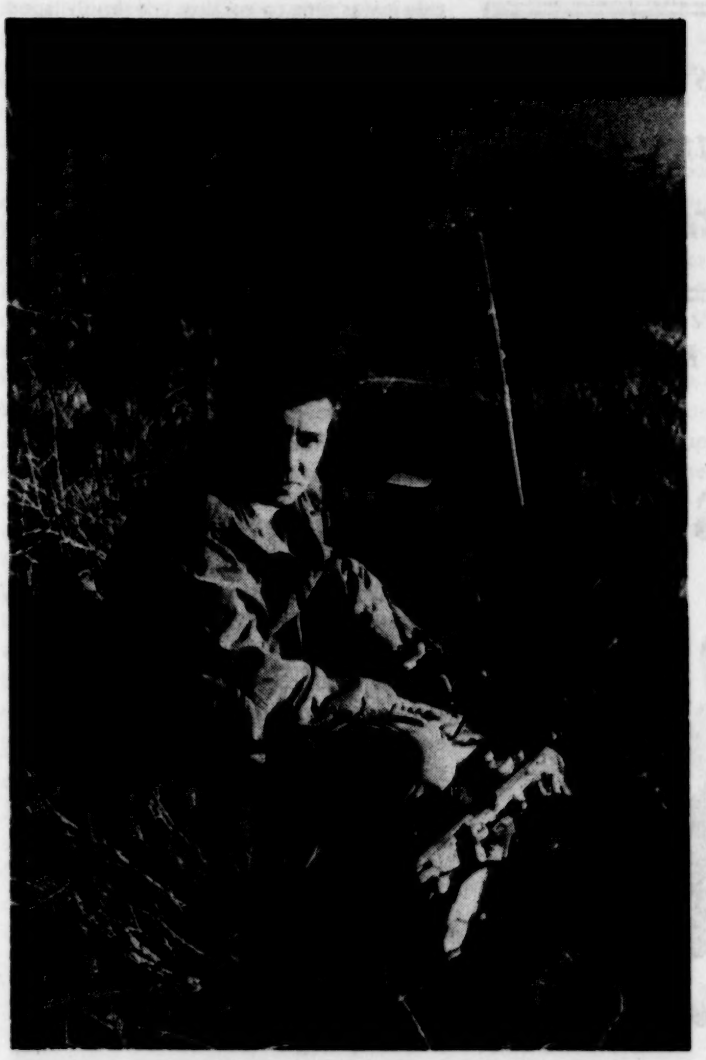
Bernard Krause's acoustical-habitat theory is a scientific "Song in the Key of Life." Drawing on years of environmental sound research, he finds that each place on Earth has a unique acoustic bio-spectrum — or sound key — that is an integral part of ecosystem communication.

Bernard's audio achievements are impressive, to say the least: as an electronic musician he's recorded with 40 bands, from Jimmy Cliff to the Tubes, and worked on innumerable film and television scores; he has a Ph.D. in bio-acoustics and has recently been named Research Associate for the Cornell Library of Natural Sounds and Field Associate of the California Academy of Sciences. At the time of this writing Bernard is in Rwanda recording mountain gorillas. And with his "Tools for Environmental Recording" (p. 16), you too can record bullfrogs, mallards, mosquitos, and the like. —Jeanne Carstensen



It is very hard now to find any place on the planet quiet enough to just listen, let alone record. And when you find it, sadness will come to you as you begin to realize what aural beauty has been lost to progress. In the most remote places of the Amazon Basin sounds from the logging camps cutting away the rain forests carry literally for miles. After tracking a leopard for several days in Kenya we finally got close enough to record only to have our efforts thwarted by the strains of a Marvin Gaye music track coming from a ghetto-blaster somewhere over the horizon. Some of us don't yet know that the sounds that creatures make hold a very special significance. But it's very late and we're just now learning to listen again.

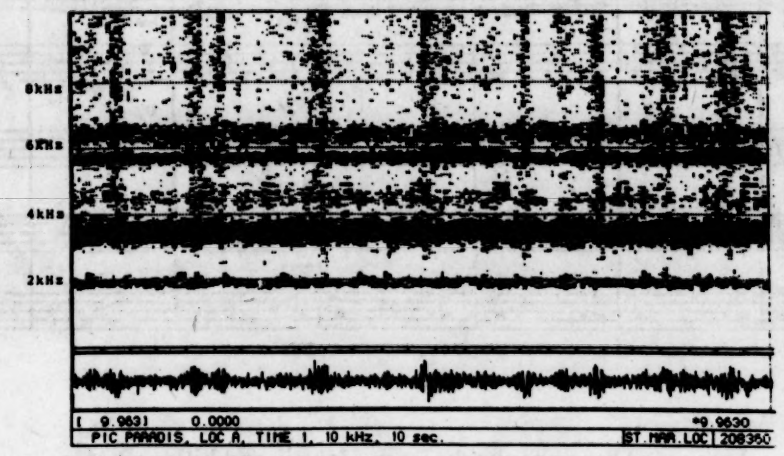
There's been a vast amount of work over the past 30 years related to species-specific recording — that is, single-animal vocalizations — in an effort to understand what it is they are using their vocalizations for. When I was working on my doctorate in the late '70s and early '80s, I recorded humpback whales in Hawaii and killer whales along the coasts of British Columbia and Alaska. And I began to wonder just how these vocalizations fit into the entire bio-spectrum of audio events because they certainly weren't the only sounds present. In listening to the acoustical ambience on land and in the water night after night, the thought of an extended hypothesis occured to me of another way of hearing these sounds — ways in which the creatures themselves might be hearing them. Quite simply, it is based on the premise that every location on earth has a unique acoustical bio-spectrum (assuming the presence of biological life) that provides information as to the dynamics of the ecosystem in that place. By sampling the bio-acoustics of a specific area over periods of time and under different conditions, we might be able to find ways to predict how certain human-induced, biological or geological audio changes might affect the ecosystem as a whole. Conversely, when normal audio patterns change, how they might be telegraphing other significant alterations in the system, which Dr. Leighton Taylor of the California Academy of Sciences suggests is another manifestation of the "Gaia Hypothesis" (originally proposed by Drs. James Lovelock and Lynn Margulis): where the ecosystem acts as an organic whole to influence the environment in which the organisms coexist.



We first conceived this acoustical habitat ambient theory during a trip in 1982 to the Amazon Basin where we discovered, having recorded fifteen minute samples every hour in one location over a period of many weeks, that given weather, time of day and season, there appeared to be a measurably stable acoustical bio-spectrum quite unique to that particular place — no less than a sound key. What was so unusual about the spectrogram evaluation of our recordings upon our return was very strong evidence that when one vocal creature ceased to reproduce sounds, it would soon be replaced by yet another in the same part of the audio spectrum, thus appearing to keep intact the special ambient sound key of that habitat. When we moved as little as 100 meters in one direction or another, the measurable ambient spectrum was different. When we recorded on different nights at the same location but at different times, we got spectrogram matches for each habitat. We observed similar phenomena while recording in Kenya a year later. Again, in various loca-

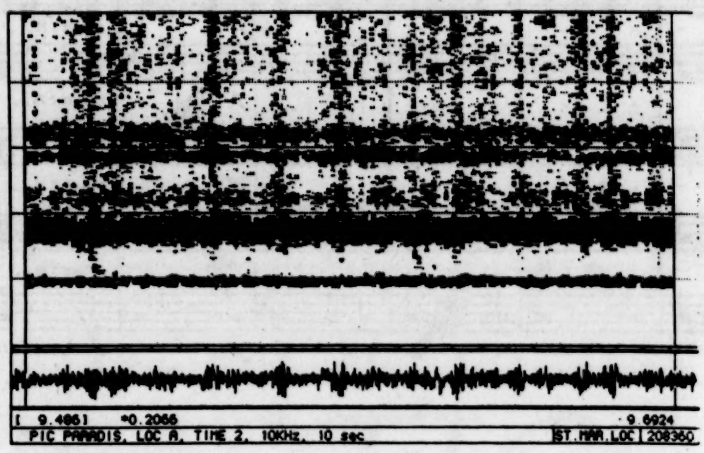
The author at the Marin County Headlands recording waterfowl using the Nagra IVs recorder and Schoeps 541 microphones. See "Tools for Environmental Recording" (next page) for details.

Fig. 1



14 MAY 1986, 2100hrs.

Fig. 2



16 MAY 1986, 0300hrs.

tions in Alaska and British Columbia and in several marine environments as well.

The spectrograms shown in Figures 1-4 were taken from a series of recordings made on Pic Paridis in St. Maarten in the Virgin Islands in mid-May 1986. The range from bottom to top of the spectrogram shows the frequency from lowest to highest. The darker portions indicate those parts of the frequency spectrum which are most intense or loud. The scale from right to left indicates the amount of time represented on the page — in each case, approximately 10 seconds. Figure 1, taken at 9:00 PM on May 14th, shows pronounced horizontal patterns in the 2kHz., 3kHz., 5kHz., and 6kHz. ranges. 31 hours later at 3:00 AM, at the same location, the pattern is virtually the same (Fig. 2). However, when we moved less than 100 meters to another location where the vegetation appeared to us to be pretty much the same, the patterns, recorded on the same evenings and time intervals, likewise matched for that specific location (Figs. 3 and 4). Yet, probably because of regional similarities, the spectrograms in Figures 3 and 4 seem to retain some of the same lower frequency components at lower amplitude as Figures 1 and 2, while, at the same time, demonstrating

Tools for Environmental Recording

by Bernard L. Krause, Ph.D.

BELIEVE IT OR NOT, you can record a whole lot of sound with equipment that costs as little as $110. But before you get in your car and head to Radio Shack, consider these questions:

1. What do I want to record? Specific animals? General ambience?

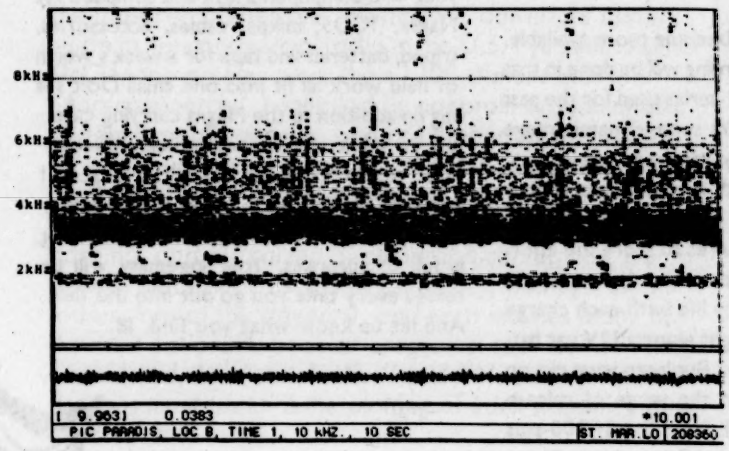
2. Where do I want to record? Weather conditions? Land-based environments? Marine environments?

3. To what use will these recordings be put?

Now, back to the first statement. $59.95 buys you a perfectly good mono standard cassette recorder at Radio Shack. It's called the Minissette 15 and it's voice-activated which means that it starts when a signal is loud enough to activate the "record' electronics and stops when there is silence for a certain period of time. This allows you to sleep in your tent knowing full well that you won't miss much vocal creature activity, at least for the duration of the tape length and the life of your batteries. Radio Shack also sells a PZM (Pressure Zone Microphone) for $44.95 that makes up a perfectly functional system for recording evening and dawn choruses and a few specific animals (if loud enough). I've used this system to record penguins at the California Academy of Sciences and gorillas at the San Francisco Zoo. I couldn't wait around for the animals to decide it was time to vocalize and simply taped the mike and recorder to a nearby wall. The quality of the recordings was not the greatest because there is a short time lag (40-50ms.) between the time the recorder detects a sound and when it gets fully up to speed. So you lose the onset of the activating vocalization. However, you will get the ones that follow. With a little editing and signal processing (filtering and gating) when you get the tapes home, the recordings will be perfectly functional.

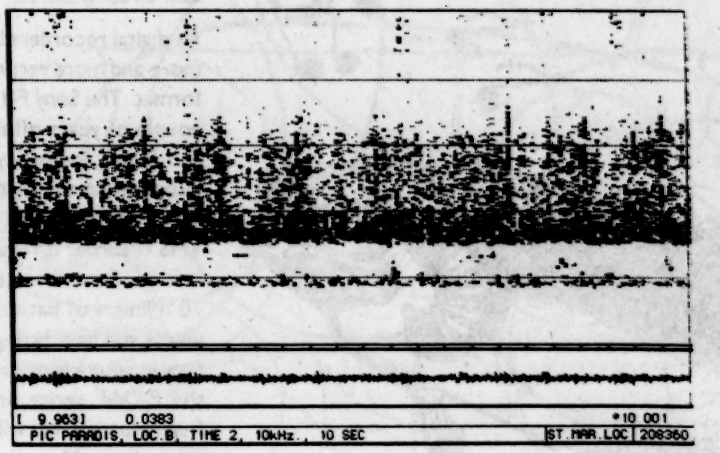
If you're going to seriously record birds or whales, however, you'll need better equipment that won't have as much of a tendency to distort at higher frequencies. Sony makes two viable stereo recorders: the Walkman Pro and the TCD5M. For evening or dawn choruses and ambient sound in general, couple either of these recorders with a pair of Sony ECM 155 microphones, small wind screens to cut out puffs of ubiquitous wind, clip them to your shoulders and you're in business. The ECM 155s are omnidirectional, meaning that they pick up signal from all directions. The last five minutes of *Nature* (an album of mine released by The Nature Company) were recorded with my TCD5M and two ECM 155s clipped to the windshield wipers of my rental car on a mountaintop in a St. Maarten, V.I., rain forest. For me, the TCD5M has a slight edge in that it has a combination of Dolby B, switchable limiter, a little more dynamic and frequency range, more accessible metering,

Fig. 3



14 MAY 1986, 2130 hrs.

Fig. 4



16 MAY 1986, 0345 hrs.

a significant difference in the higher frequency components because of local habitat bio-spectra.

In that regard, we continue to develop and gather baseline data on this research project that we hope will have significant implications. Among the questions that need to be considered: In what ways (if at all) do animals utilize these bio-acoustical spectra as beacons? Are there regional and local bio-acoustic habitat grids through which they travel to help them orient to one place or another? What happens when there is an acoustical imbalance such as human-induced masking noise or a biological change in a given habitat?

Once again, we appear to be in a race with a biological clock to get information before it disappears forever. It is our strong impression that there exists not only species-specific voices but a unified chorus of biological voices that each day and night reaches out to convey its special message. While large electronic scanner dishes search the planets for signs of life, we desperately need to focus a few on the very bio-acoustic rhythms and themes from which we draw ancient knowledge of our sustenance. ■

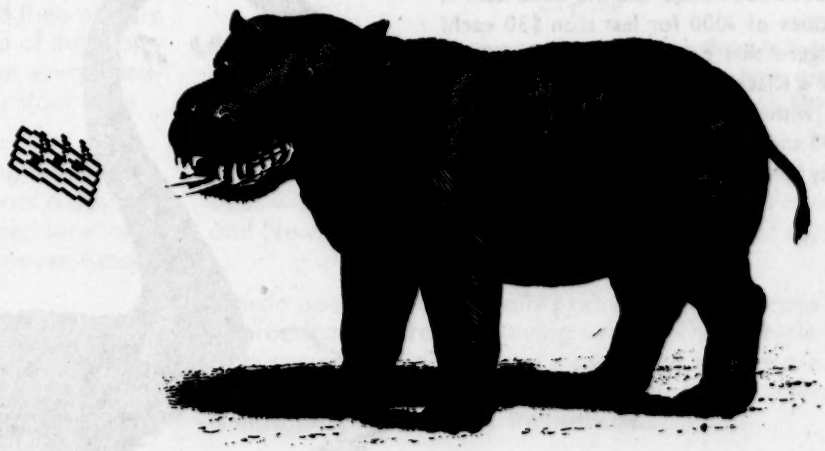
and, in general, offers better human-engineering for field work.

But the DC-3, the workhorse, the *ne plus ultra* and the *piece de resistance* in the field is still the Nagra IVs. It is a reel-to-reel machine which, with certain factory modifications, takes 7" reels of 1/4" wide tape. With the right combination of tape and input transducer (microphone or hydrophone), one can cover pretty much the entire range of human hearing (20Hz. - 20kHz.). The machine has three speeds: 3.75, 7.5 and 15 ips. An additional noise reduction feature, Nagra Master at 15 ips., gives the recordist a dynamic range of 84dB . . . a factor of about six beyond the best portable cassette recorder with Dolby B. About eight years ago, while working on a film, I dropped my Nagra from a helicopter hovering 40 feet (about five stories) above a beach. Except for a slightly cracked plastic cover, it was still working when we landed and required hardly any adjustment to bring it back to perfection once again.

The quality of the Nagra is so good that you will want to use excellent microphones. For the most part, I immediately eliminate the shotgun type because they tend to "color" the sound. I prefer Schoeps CMC5 mike amplifiers and the #41 capsule, otherwise called the 541. (This is also Lucasfilm's favorite.) Since most of my work involves both the recording of large fields of ambient sound and specific creatures, the hypercardioid (or limited field) pattern offers the best compromise solution.

Now for the serious part; the price. A Nagra IVs (stereo) will set you back somewhere between $4,200 used and $8,300 — $10,800 new depending on what features you get with the machine. And the Schoeps 541 combination begins at around $930 per unit. Because of their extreme sensitivity to wind, you will at least need to buy a combination of foam windscreens . . . about $150/set. This will work well in winds up to 5 or 6 mph. For more extreme weather, you will need to invest in Schoeps Cut I filters . . . about $400 a pop. These are necessary to attenuate the very low frequency wind material that would otherwise overload the input of your recorder. Then, for recording in winds over 10 mph and up to about 35 mph, you will need Rycote Zeppelins: large plastic-netted, zeppelin-shaped protectors that tend to disperse the force of the wind. On top of these go Schoeps Windjammers. These look like furry slippers and fit over the Rycotes. And so with an additional $580.00, you're ready to REALLY record! Well, almost. Because the mikes are extremely sensitive they will need to be mounted on some kind of tripod (I bought a very light aluminum version at a garage sale) and a shock mount. An extra $100-plus.

If you're going to record specific creatures



in a fairly noisy ambient field, you might want to use a parabolic dish. It looks like a plastic bowl and, when pointed in the direction of a vocalizing bird or other animal, tends to sharply focus and gather in the sound picked up only in that narrow field. The microphone is mounted on the dish facing into the center. And the Schoeps 541 works just fine for this purpose. The dish is primarily successful in mono and tends to "color" the sound slightly in addition to severely limiting frequency response. Sony's Model PBR330 sells for around $80. It is 13.625" in diameter, which means it will only respond well to frequencies of about 1000Hz and above. Perfect for white-crowned sparrows (3.8kHz — 4.2kHz). However, if you're not keen about approaching a lion too closely, you'll need a dish 6 to 8 ft. in diameter! With parabolics, the lower the vocal frequency of your subject, the greater- diameter dish you will require.

For recording underwater, you'll need a special mike called a hydrophone. Generally, they come in two parts: the hydrophone and cable, and a pre-amplifier. For the industrious, buy the basic hydrophone element (a little capsule with two wire leads) for $9.95 from Edmund Scientific of Barrington, N. J. Then you'll have to attach a long enough cable to go from the capsule underwater to your recorder, seal the cable and capsule, add a connector to the end of the wire, build a pre-amp and plug it in to a tape machine. It has a frequency response of from 10 Hz. to 6kHz. Spartan Electronics (2400 E. Ganson St., Jackson, MI 49202; 517/787-8600) sells the complete package (stock #110-8158-002) for about $500 each, and the same item in quantities of 1000 for less than $30 each! Go figure that one! But the best is B&K (Bruel & Kjaer) Instruments, Inc. Their 8103 sells (without pre-amp) for a little over $1,000 and it's worth every penny. The frequency response is well beyond 100 kHz. and you can use it as a regular mike under certain circumstances.

As digital recorders become more available, more and more recording will be done in that format. The Sony F-1 series used for the past couple of years offers some dynamic range and lower frequency response advantages. However, in the field, it takes a ton of batteries to run the F-1 and either the Beta or VHS recorder it requires to store the information. Even then you will only have about 20 minutes of battery life with each charge unless you have brought along a 12V car battery in your knapsack. But keep your eye on the R-DAT series on the verge of release from Japan. They will be in the $1,300-plus range from Matsushita, Sony, Aiwa, Sharp and others.

Over the years there has been considerable discussion about the kinds of tape to use for analog recording. The folks at the Library of Natural Sounds, Laboratory of Ornithology, Cornell University, did some investigation and found that, for their reel-to-reel purposes, Scotch 806, 807, 808, and 809 was superior in that it offered less print through (a phenomenon whereby the signal is transferred from layer to layer at some detectible level when audio tape is wound onto a reel). For audiophile uses, however, more in line with the kinds of results I'm after, I prefer Ampex 456 or 457 Grand Master (or the Scotch counterpart 226). While there is some print-through problem with certain kinds of signal (the trade-off), in general the tape gives more extended frequency and dynamic range, less tape hiss and distortion. When combined with Nagra Master or Dolby SR noise reduction systems, the recorded signal on Ampex 456-7 or Scotch 226 stock will often equal or surpass the dynamic range of current digital equipment. Cornell and I agree, however, that Maxell UDS-2 and Maxell XLI-S are the cassette tapes to use.

There has been no intent here to be comprehensive or greatly detailed about the vast range of available equipment. Several other kinds of very fine cassette recorders and a whole host of microphones will do the job. Don't worry too much about whether or not you have exactly the right machine. Keep your equipment serviced properly and keep your field components light and compact. My Nagra, TCD5, mikes, cables, accessories, tripod, batteries and tape for a week's worth of field work all fit into one small Dolt sea bag (in addition to the Nagra carrying case). Just go do it and you will quickly discover what works and what doesn't. Everyone I know claims to have a secret methodology down pat. Don't believe it. Nature recording is full of surprises. Your ingenuity will be tested every time you go out into the field. And let us know what you find. ■

Minisette 15 and **PZM: $59.95** and **$44.95** from Radio Shack (all hamlet-size and larger communities).

Nature and **The Equator: $9.95** each (plus $3.25 postage and handling for one or both tapes) from The Nature Company, P. O. Box 2310, Berkeley, CA 94702.

Sony Walkman Pro $379; **TCD5M** approx. **$550** (discontinued; superceded by TCD5 Pro 2 — $870); **ECM 155 $79.95**; **PBR330** approx. **$80** (discontinued; see below).

Nagra cassette recorders $8,300 — $10,800 (still about $4,200 used).

Schoeps CMC5: $425; **541** (CMC5 with #41 capsule): **$930**; **Windjammers: $80** ea.; **Cut 1 filters: $410** ea.

Rycote Zeppelins: $215.

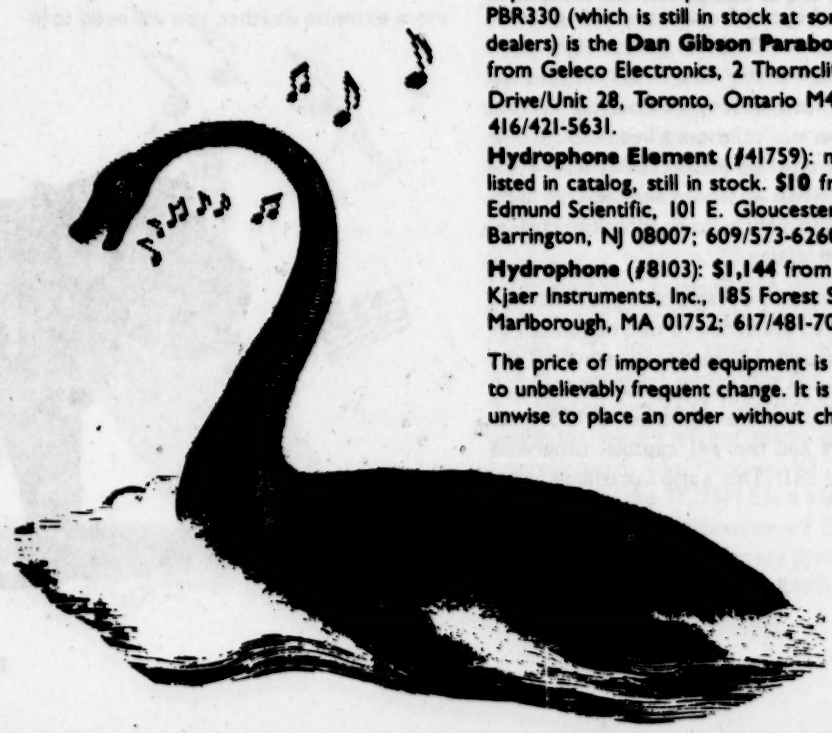
Sony, Nagra and Schoeps equipment is available from authorized dealers including Audio Services Corporation, 4210 Lankershim Blvd., North Hollywood, CA 91602 (818/980-9891), from whom most of these prices were obtained. Attempts at direct contact with Sony should only be undertaken by hyperpatient adults.

A parabolic dish comparable to the Sony PBR330 (which is still in stock at some dealers) is the **Dan Gibson Parabola: $150** from Geleco Electronics, 2 Thorncliffe Park Drive/Unit 28, Toronto, Ontario M4H 1H2; 416/421-5631.

Hydrophone Element (#41759): no longer listed in catalog, still in stock. **$10** from Edmund Scientific, 101 E. Gloucester Pike, Barrington, NJ 08007; 609/573-6260.

Hydrophone (#8103): **$1,144** from Bruel & Kjaer Instruments, Inc., 185 Forest Street, Marlborough, MA 01752; 617/481-7000.

The price of imported equipment is subject to unbelievably frequent change. It is probably unwise to place an order without checking.

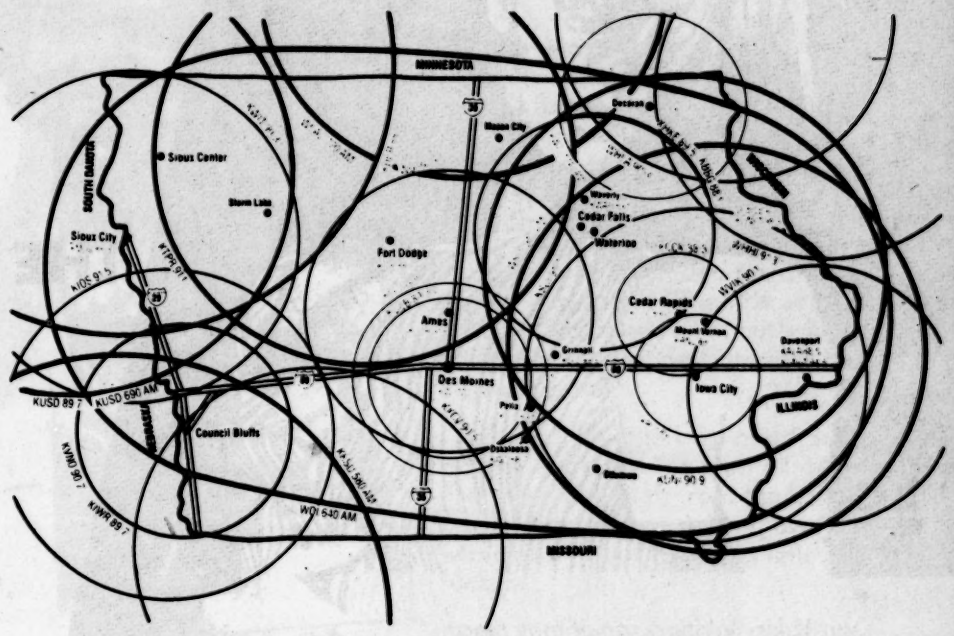


Go Public!

The most comprehensive, informative, downright useful guide to noncommercial radio in the U.S. I've seen. Author McClendon profiles more than 1,100 stations that are "non-commercial, controlled by nonprofit organizations or government agencies, and are funded by the public, either through taxes, direct listener donations, or private donations." (She excludes religious non-commercial stations.) Spiral-bound for handy glove-compartment stashing, and organized by geographical regions, ***Go Public!*** *details each station's frequency, wattage, signal radius, format (by daypart), and even indexes many of the most nationally popular programs, such as "All Things Considered," "MonitoRadio," and "New Dimensions." Perhaps most useful is the plotting of each station's signal area on state maps.*

Need a hit of "spacemusic" in Johnson City, Tennessee? How about "Dr. Demento" in Manhattan, Kansas? Or a program in Laramie "for the shortwave radio hobbyist"? (My current favorites are the "Bad Film Update" and "Unexplained Phenomena" programs on KZUM-FM, Lincoln, Nebraska.) ***Go Public*** *is the place to look.*
—Phil Catalfo

Go Public!
Natalie McClendon
1987; 219 pp.
$12.95
($14.95 postpaid) from:
Wakerobin
Communications
611 N. 26th Street
Lincoln, NE 68503
402/435-0963



KALA 88.5 FM Davenport 100 w. Local
- ● Soul, Jazz
- ✓ Traditional Jazz, local performances, Sun 6-7p.
- ✇ *M-F:* 5:30a Soul • 9a RK • 12n Soul • 6p Jazz • 12m-3a Soul • *SAT:* 9a Spanish • 3p-3a Soul • *SUN:* 9a Gospel • 12n Jazz • 9p-12m Christian RK.

KBBG 88.1 FM Waterloo 10,000 w. 50 mi. • Sher
- ● Black, Jazz
- ✓ Local Talk Show, Fri 10a • Blacks in Classical Music, Wed 9a.
- ✇ *DAILY:* 5:30a-12m Black/Jazz.

KCCK 88.3 FM Cedar Rapids 10,000 w. 25 mi. • NPR, APR
- ● Jazz
- ✓ New Age Music, Sat 9p-12m.
- ✇ *M-F:* 5a ME • 9a Jazz • 4p ATC • 7p Jazz • *SAT:* 6a Jazz • 7a WE • 9a Jazz • 4p ATC • 5p Jazz • 7p PHC • 9p New Age • 11p Space • 12m Jazz • *SUN:* 7a Jazz • 10a PHC • 12n Folk/Jazz • 4p ATC/PA • 6p Jazz • 8p Talk • 10p Jazz.

The Complete Manual of Pirate Radio

A cynic once said that freedom of the press belongs to those who are rich enough to own one. The author of this booklet, who goes by the nomme d'aire of Zeke Teflon, feels the same way about freedom of broadcast and the transmitters required for the operation. His refreshingly anarchistic attitude is that the air belongs to everyone, and he gives us a formula for reclaiming it from the media conglomerates.

The fact that most of Zeke's schemes are illegal and could land you in the pokey must be kept in mind, but that very risk adds to Zeke's zest for the venture. He gives us an overview of the possibilities — AM, FM, shortwave, availability of used equipment, antenna needs, the pros and cons of fixed, remote and mobile operations, plus cost estimates, which are surprisingly low. A few hundred dollars could launch a small outfit. —Dick Fugett

●

Piracy is illegal. If you're busted the government can seize your equipment, drag you through the courts, fine you hundreds or even thousands of dollars, and theoretically, throw you in jail, although I've never heard of that happening to anyone. So, it makes sense to take every possible precaution to avoid The Knock (on your door from the FCC).

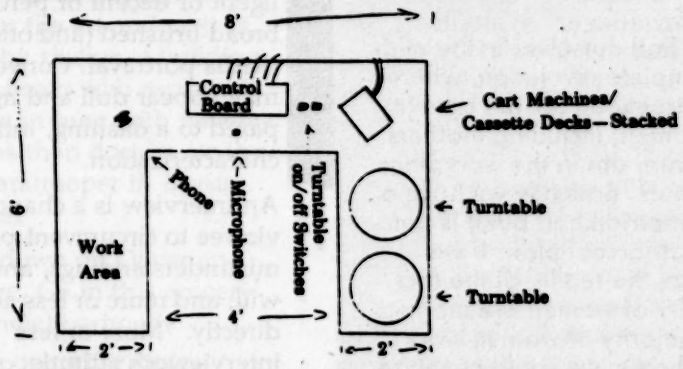
The ideal situation — in terms of maximizing listenership — for a radio station is to broadcast 24 hours a day, on a set frequency, with high power, from a fixed location. Attempting such operations as a pirate, however, would be suicidal.

On the other extreme, you could go on the air with an extremely low power (under 100mw) transmitter which would be legal under FCC rules and regulations. If you would be satisfied with a broadcasting radius of a couple of blocks, that would be the route to go. In fact, in cities with high population densities such as San Francisco and New York, such an approach makes a lot of sense.

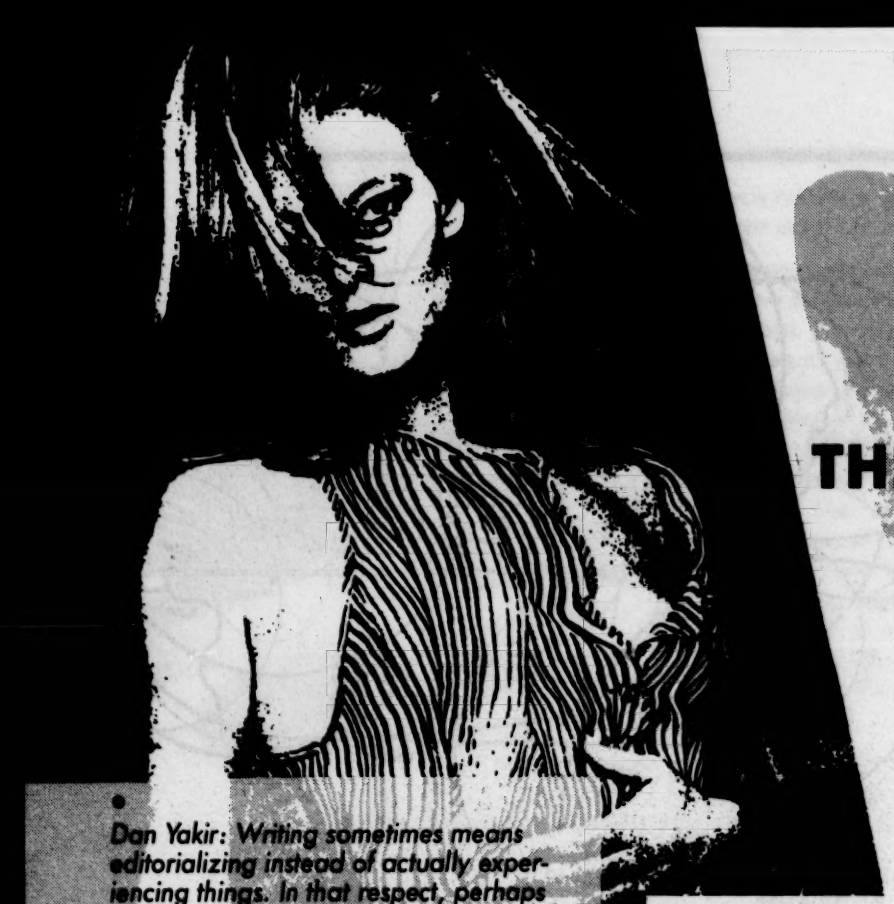
●

Mobile operation is basically pretty simple — it consists of broadcasting from a moving vehicle. That vehicle can be a car, van, truck, or even a bicycle or motorcycle. Because of antenna size considerations, mobile operation is most practical at lower frequencies.

The Complete Manual of Pirate Radio
Zeke Teflon
25 pp.
$2 postpaid from:
Bound Together
Book Collective
1369 Haight Street
San Francisco, CA 94117
415/431-8355



When designing a studio you need to keep one thing in mind: operator convenience. *Everything* should be within easy reach of the operator. A typical design would look something like this one.



THE ART OF THE INTERVIEW

BY LLOYD KAHN

•

Dan Yakir: Writing sometimes means editorializing instead of actually experiencing things. In that respect, perhaps it's less than a full life. Perhaps acting isn't all that different.

Jodie Foster: Maybe you're right. I guess it all depends on your compulsions. I'm someone who, if I like what I'm eating, will immediately tell myself, "God, I like what I'm eating!" I synthesize and analyze at the same time. I have to appreciate it somehow. At the same time, maybe it does stop you from having the actual experience, because you get out a lot of things on screen and you may think, Now I don't have to do it in life anymore.

I feel that way about books I've read. The other day, I was telling a story about something that had happened to me when I stopped and realized, I read that in a book! But for me, I had done it somehow. Unlike writers, actors are middlemen. You can't just experience things as an actor. You have to interpret them and make them accessible to the audience. . . —*Interview*

•

In the '80s we find ourselves in the middle of an incomplete revolution, where society is still structured for the benefit of men. But women, including mothers of young children, are in the workplace in record numbers. Basically we have a society that is matriarchal, but it is functioning on a patriarchal plan. If we would recognize the reality of the fact that the majority of women are mothers and that the majority of women work outside of the home, we could organize our society to suit their needs.

Time and again in history, feminism has made tremendous advances — in the '20s, at the turn of the century, in the 18th century, in the 17th century — and then the gains are taken back, because the next generation that comes along, the beneficiaries of these feminist revolts, don't understand that they have to keep on working. They can't let male-dominated society take away the gains. We cannot let feminism be taken back.
—Erica Jong *(Interview)*

IT'S HARD not to form opinions of public figures through the media. Movie stars, politicians, top athletes, successful entrepreneurs — those who for one reason or another are at the top of their fields and in the public eye — are constantly under the media spotlight. Newspapers, magazines, and TV paint their portraits in the relentless pursuit of human-interest stories: their personalities, lifestyles, attitudes, romances, even moral character. In addition, public relations specialists often successfully manipulate clients' images.

Through all this, we feel we *know* Joe Montana or Joan Collins or Don Johnson. Yet when we chance to read an interview with these same people, they often seem surprisingly different from their media image. On a one-to-one basis they often come out more intelligent or decent or perceptive than the broad-brushed (and often preconceived) media portrayal. Conversely, others may appear dull and mundane compared to a dashing, intriguing media characterization.

An interview is a chance for the interviewee to circumvent preconceptions, misunderstandings, and, at times, ill will, and more or less address the public directly. "More or less" because the interviewer's attitude, questions, editing and closing note all have enormous bearing on the final product and, therefore, the impression made.

My favorite place to look for famous-people interviews is *Interview* magazine, an oversize tabloid originally started by Andy Warhol in 1967. *Interview* has undergone some changes through the years (including an uneasy few years when then-editor Bob Colacello devoted a lot of space to cocktails, canapes, limos and jet-hopping to de-*vine* parties around the globe, and to interviewing ultra-right conservatives in politics and beyond). Yet even then *Interview* seemed unique in its mix of excellent interviews and imaginative design. Since then, the magazine has improved and in addition to the interviews often reproduces photos and paintings by contemporary artists good enough to cut out and hang on the wall. The ads alone are worth the price of admission, and in the 20 years *Interview* has been around, one can see its influence on other journals and periodicals. (*Rolling Stone* periodically seems to attempt emulating one or another of *Interview's* stylistic design features, generally with disastrous results.)

★ ★ ★

The question-and-answer format is the classic and most familiar type of interview. Another approach, seen increasingly frequently, is the monologue style. Here the person appears to start talking and goes on uninterrupted to the end. This is a hybrid of an essay and an interview, and obviously a lot of editorial cutting and pasting go into making a readable and cohesive whole. Only the interviewee and interviewer know how faithful the end product is to the original discussion, but in the hands of a fairminded and skillful interviewer, the result can be finely crafted and revealing. "The interviewer cuts and splices to emphasize the quality and dynamism of the exchange, which has depended as much on what is implied as on what has been articulated. The finished in-

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Shelter Publications (Domebook 2, Stretching) *editor Lloyd Kahn recently finished* Over the Hill, But Not Out to Lunch *(WER #49), a book of 49 interviews with people over 40 who manage to stay in top physical condition.* —*Jeanne Carstensen*

terview strives to deliver the complete experience of the encounter."*

A fairly recent example of the monologue-style interview is the book *DV*, which reads like a chatty autobiography but was obviously tape recorded and assembled by editors George Plimpton and Christopher Underhill. The reader feels he is sitting across the table from Diana Vreeland, former fashion editor of *Harper's Bazaar* and former editor-in-chief of *Vogue*, as she joyously weaves in and out of past and present, discussing her rich and colorful life. Here at the end of the book she starts wrapping it up: "Did I tell you about the zebras lining the driveway at San Simeon? You believed that, didn't you? Did I tell you that Lindbergh flew over Brewster? It could have been someone else, but who cares — *fake it!* Did I tell you about the elephants at the coronation? Of course I did. What about hitting Swifty Lazar in the nose? Well, I never did *that*, you know why, it would break my arm! It would never heal . . . "

★ ★ ★

Celebrities and public figures have always been well covered by the media. But another category of interviewee, often more interesting, is the person who is not a public figure. People who are not famous and therefore have little access to the media, nor to writers with the skills of written communication, generally have no way to address the public. Studs Terkel mined a rich vein of humanity with his book *Working*, published in 1972. Still the best of Terkel's several books of interviews, *Working* consists of monologues of men and women living in Chicago — a switchboard operator, a garbage man, carpenter, proofreader, pianist, supermarket checker, welder. It's refreshing to hear from real people — what they think, care about, how they live, struggle and fantasize. Studs unlocked streams of thoughts, visions, anguish and tenderness that would otherwise never have been articulated.

Three other books, all in the monologue genre and all of non-famous people, are *Bloods* by Wallace Terry, *Cops* by Mark Baker and *Bosses* by Jim Wall. *Bloods* is a stunning account of the Vietnam war by black soldiers — "bloods" — who formed a disproportionately large share of America's fighting forces there. The viciousness and senselessness of the war are brought home dramatically by these finely crafted and often poetic interviews.

Cops is a bleak and depressing picture of big-city cops and the almost unbearable pressures they face in their everyday

Gene Woodley, Jr. —*Bloods*

duties. *Bosses* includes "leaders who keep things running." Most striking among these people, who include a head nurse, a missile silo commander, massage parlor operator, air controller and mosque leader, are some very real bad dudes: a hit man, a heroin dealer, an armed robber, talking surprisingly openly about killing, crime and the otherwise normal details of their everyday lives.

I'm sure there are other books of similar nature. The art of the interview seems to be well understood now by many journalists and is being used with effectiveness and insight. The books of real-people interviews give us a chance to hear from people we'd never otherwise meet and to listen in on a broad cross-section of life. I tend to remember some of these people years later, like the carpenter in *Working* who talked eloquently about the art and craft of carpentry and the *rhythm* of building, or the nurse in *Bosses* who explained how much more in tune with patients' needs are nurses than doctors, or the black combat paratrooper in *Bloods* who came home:

> One day I'm down on Oliver and Milton Avenue. Go in this grocery store. In my neighborhood.
>
> This Vietn'ese owns the store.
>
> He say, "I know you?"
> I say, "You know me from where?"
> "You Vietnam?"
> "Yeah, I was in Vietnam."
> "When you Vietnam."
> " '68, '69."
> "Yeah, me know you An Khe. You be An Khe?"
> "Yeah, I was in An Khe."
> "Yeah, me know you. You Montagnard Man."
>
> Ain't that some shit? *(continued)*

* *Conversations with American Writers*, by Charles Ruas (Alfred A. Knopf, 1985).

•

We saw Montagnards. They was all dead except these two kids that run away. I found them hidin' in the woods, 'cause this little girl, about three years old, started cryin.' her brother was about five, and he was wounded in the stomach.

This little fella reminded me of myself when I was small. 'Bout the same complexion. Big head full of curly hair. I just could not kill him. So I brought him and his sister back.

I grabbed the little boy, and I put him against my body. He bled all over me. From the time I left from the helicopter pad to the first-aid station, everybody was talkin' 'bout, "Kill the little motherfucker."

I said, "Naw, you ain't gon' kill this one. He gon' live."

They took me directly to this officer, and he told me I will not bring another Vietn'ese living body into that unit unless I am specifically told to bring prisoners. If it happened again, I would be court-martialed.

—Gene Woodley, Jr. *(Bloods)*

•

Do you have to lie sometimes?
Oh sure, you have to lie for other people. That's another thing: having to make up stories for them if they don't want to talk to someone on the telephone. At first I'd feel embarrassed and I'd feel they knew I was lying. There was a sense of emptiness. There'd be a silence, and I'd feel guilty. At first I tried to think of a euphemism for "He's not here." It really bothered me. Then I got tired of doing it, so I just say, "He's not here." You're not looking at the person, you're talking to him over the instrument. (Laughs.) So after a while it doesn't really matter. The first time it was live. The person was there. I'm sure I blushed. He probably knew I was lying. And I think he understood I was just the instrument, not the source.

—Receptionist *(Working)*

•

What amazing attitudes those marvelous people the English can conjure up! Especially when they're in trouble. Think of the Marquess of Bath, who owned Longleat. He went through the whole war with a duck on a lead, praying for bombs to fall so that his duck would have a pond to swim in. —*DV*

•

The best meat, the best eggs, the best fruit, and the best vegetables are all found in the markets of Paris. St. Germain was once a boulevard with many places to shop for food, but now it's much more chic than it once was, which I don't like. Now it's filled with boutiques with one willow tree in the window, which I think is so tacky. What I like is to look at sixty-five thousand brown eggs. —*DV*

•

We're doing some deals with some pretty high-level organized crime figures in the state and around the country. For instance, I would fly to Florida and have lunch with them. Pretty big-time guys, the kiss on the cheek and the whole bit.

In undercover work you come from this world of black and white into a world of "We don't give a fuck and whatever happens, happens." You're living like that and it's crazy. I never carried a gun when I was undercover. You only carried a gun when you wanted to do business with it. That's a very disrespectful thing to do, carry a weapon into a meeting. Among criminals, they have their own code of ethics. If you and I are going to sit down and do a deal of stolen merchandise or dope and we're just in the talking stages of it, why do I need to have a gun at the table? I am either a cop or extremely paranoid about my own survival or I'm out to do something to you. Then nobody will deal with me and how am I going to make my money? So that's the reason you don't carry that weapon.

—*Cops*

•

I make most of my money killing. I do some, then others do some for me. I know most of the other hit men. Here's the way it is. Most hit men know each other, and there's an honor among hit men. So I know about a dozen, and if I got a killing — say I meet the people who want the killing in Michigan, but the person they wants killed lives in Texas, Arizona, or anywhere. So I just call up one of the dudes, say the Grim Reaper, in that area, and I say, "Hey, I got one out there, blah, blah, blah."

And he might say, "I got one back that way. You take care of him for me, and I'll take care of this one for you." That way it's less conspicuous. If I had to drive out there or fly out there, then anything could happen. They could pick up on it. And it don't make no difference how the money is going. He's getting $50,000 and me $35,000; a few thousand dollars don't make me no difference. So we'll exchange photos, names, addresses, then we do the jobs.

—*Bosses*

I'm buyin' groceries from him.

I ain't been in the store since. I'm still pissed off.

He's got a business, good home, drivin' cars. And I'm still strugglin.

Interview Technology

It's best if the person you're interviewing is as relaxed and natural as possible. Usually you'll go out to do the interview, start talking, everything going smoothly, and when you take out the tape recorder, things suddenly get stiff and formal. For a while I gave up the recorder for this reason and used a stenographer's hand book to take notes. This made for a more relaxed conversation, but unless you take shorthand, you'll obviously only be able to get the highlights. (If you do forego the tape recorder for this method be sure to go home right afterward and reconstruct the conversation while it's fresh in your mind.) I've since gone back to the machine and in doing more than a hundred interviews in recent years, have ended up with the following techniques.

Olympus Pearlcorder L200.

Recording:
Microcassette recorders are small, unobtrusive and have been greatly improved in recent years. A good place to get these recorders, as well as mikes, earphones, transcribing equipment, etc. is Martel Electronics, Inc. in Anaheim, CA (mail order). A workhorse microcassette model that has been around for some years and is dependable is the Olympus Pearlcorder S810, which has one-finger slide control, cue mark function, two speeds and an end alarm. Olympus also has a great new Pearlcorder, the model L200, that is very small (fits in shirt pocket) and has extras like variable control voice actuator, double-time fast-forward or rewind, cue marking (you can put cue marks in between interviews and the tape will stop at each mark, *or* you can use this function like underlining paragraphs on a page — to emphasize good parts of the interview). You can get four hours' recording time on a 90-minute cassette. Martel lists some 25 microcassette recorders, from Olympus, Sony, Sanyo, and Norelco. From what I understand, Olympus recorders are the best. They apparently invented the microcassette, their warranty and service departments are excellent and they do not change models often, as does Sony.

Microphone:
All the recorders have a built-in mike, but I also have a small mike (Olympus Ultra Sensitive ME-7) for noisy places like restaurants; it will record either omnidirectionally or can be set for a narrow band of reception. I also have a phone mike that fits over the telephone earpiece, but there's an intriguing new Sony miniature mike that you put inside your ear and it will not only record over the phone, but will also record your own voice — model MDR-E140C.

Power:
I have an A.C. adapter so I can run off an outlet when not using the 1.5-volt batteries. I always put in new or nearly

MARTEL ELECTRONICS: catalog **$2**; 920-D East Orangethorpe, Anaheim, CA 92801; 800/331-5231.

SONY: BM-17 microtranscriber **$300** — **$350**; MDR E140C headset/microphone **$12**; MC-60 BM tape **$3.50**. Prices are suggested retail; products are frequently cheaper locally. Sony sells through authorized local dealers — check the Yellow Pages.

OLYMPUS: Pearlcorder S810 discontinued; superceded by S907 (**$64**) and S911 (**$84**). Pearlcorder L200 **$240**; ME-7 microphone **$75**. Olympus also sells through authorized local dealers. Alternatively, you can order directly from Olympus Corporation, Crossways Park, Woodbury, NY 11797; 516/364-3000. Add $4 per item for handling.

Interview: Gael Love, Editor. **$20**/year (12 issues) from Interview, 19 E. 32nd Street, New York, NY 10016.

DV: Diana Vreeland; edited by George Plimpton and Christopher Hemphill. 1985; 258 pp. **$3.95** ($4.95 postpaid) from Random House/Attn.: Order Dept., 400 Hahn Road, Westminster, MD 21157 (or Whole Earth Access).

Working: Studs Terkel, 1974; 784 pp. **$4.95** ($5.95 postpaid) from Ballantine Books, c/o Random House, 400 Hahn Road, Westminster, MD 21157 (or Whole Earth Access).

Bosses: Jim Wall, 1986; 268 pp. **$17.95** ($19.95 postpaid) from Lexington Books/D. C. Heath & Company, 2700 Richardt Ave., Indianapolis, IN 46219 (or Whole Earth Access).

Cops (Their Lives in Their Own Words): Mark Baker, 1985; 371 pp. **$4.50** ($5.50 postpaid) from Pocket Books/Simon & Schuster, Attn.: Mail Order, 200 Old Tappan Road, Old Tappan, NJ 07675 (or Whole Earth Access).

Bloods (An Oral History of the Vietnam War by Black Veterans): Wallace Terry, 1984; 311 pp. **$17.95** ($18.95 postpaid) from Random House/Attn.: Order Dept., 400 Hahn Road, Westminster, MD 21157 (or Whole Earth Access).

new batteries when doing an interview or series of interviews. There's nothing like getting home and discovering I missed the good stuff because of low batteries. I also take out the batteries whenever the recorder is not in use.

Transcribing:
If you're doing a fair amount of recording you'll want a transcriber with a foot switch. I use a Sony BM-17 microtranscriber with a foot switch, so you can stop and back up either an automatic number of words or as far as you wish. Martel's catalog lists a variety of transcribers.

One thing the Olympus recorders do *not* have and that I like is a needle that moves in response to high volume. This lets you know you're picking up the conversation and allays the nervousness that invariably arises when wonderful things are being uttered and you wonder if you're getting them on tape. A few weeks ago I sat in on an interview done by a reporter for *Newsday* who had a Sony microcassette with this feature. And I watched the needle, knowing the conversation *was* being recorded.

It's good to get completely comfortable with your recorder so you're not fidgeting around with switches making someone even more nervous. With practice you'll be able to manipulate things without looking.

I like Sony tapes best (MC-60BM — "for business use only"). The cases clip together conveniently and it's easy and clear to write in names and dates on the outsides.

Even with the recorder I still use a steno notebook and take notes. I put the recorder *under* the notebook or place it as unobtrusively as possible. Taking notes focuses attention on your notebook and the conversation, rather than the machine. Also, in constructing the interview your notes point out highlights.

I generally have someone else type up the interview but I then go over it while listening to the tape and invariably make a lot of corrections that only I know about (because I was there and know the interviewee's accent or manner of speech).

If there is time to do a series of interviews, I will tell the person that I may use the recorder over the phone but won't say each time I call "I've just turned the recorder on." Some of my best material has come over the phone when the interviewee is at home (or workplace), comfortable and relaxed.

The more interviews I do, the less inclined I am to let the interviewee go over the finished product. They often fuss unnecessarily or try to make it into an essay or testament, or add in things they forgot and in so doing eliminate the spontaneity and candor. However, if they make a point of having final approval I will go over it with them prior to printing the interview. ■

Tele-Recorder 150

My interest in buying what DAK Industries refers to as a "phone tap" is not so much spooking, but getting a reasonable cassette-tape record of a phone interview once my subject has agreed to let me tape the conversation. My previous experience with one of those suction-cup mikes was dismal. But the Tele-Recorder 150, which simply plugs into the phone jack (if you don't have an extra one, just get a "duplex adaptor jack," available from DAK for only $2), does the job. Most hand-held cassette recorders will connect to it. The recordings I get from phone interviews are now more reliable than the tapes yielded from face-to-face sessions, particularly when my subject is a mumbler.

Incidentally, this was my first experience in dealing with DAK, whose direct-mail ads you have probably seen. Service was prompt, and since the product worked, I didn't get a chance to test their "30-day risk-free trial." Their catalog is full of fascinating audio, phone, video and computer equipment, and is a thoughtful addition to your bathroom to entertain gadget-freak visitors. —Steven Levy

Tele-Recorder 150 (order #9232): **$27.40** postpaid from DAK Industries, 8200 Remmet Ave., Canoga Park, CA 91304. 800/325-0800 (orders); 800/423-2866 (inquiries).

Cheapest Transcriber

Manufactured by Radio Shack, it costs the do-it-yourself price of $2.99. This "transcriber" is only a foot pedal that plugs into the remote connection of a cassette recorder/player. It requires a machine with a remote plug. Even though it doesn't back up, it does the job. I've used one for years, though I've wished I had a fancier one. —Kevin Kelly

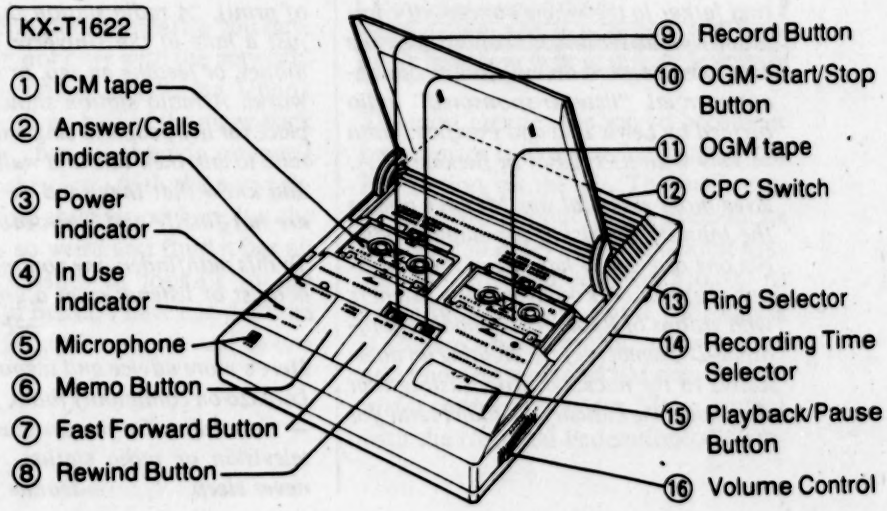
Realistic Cassette Remote Foot Pedal (order #44-6100): **$2.99** from Radio Shack (everywhere).

Panasonic Answering Machine

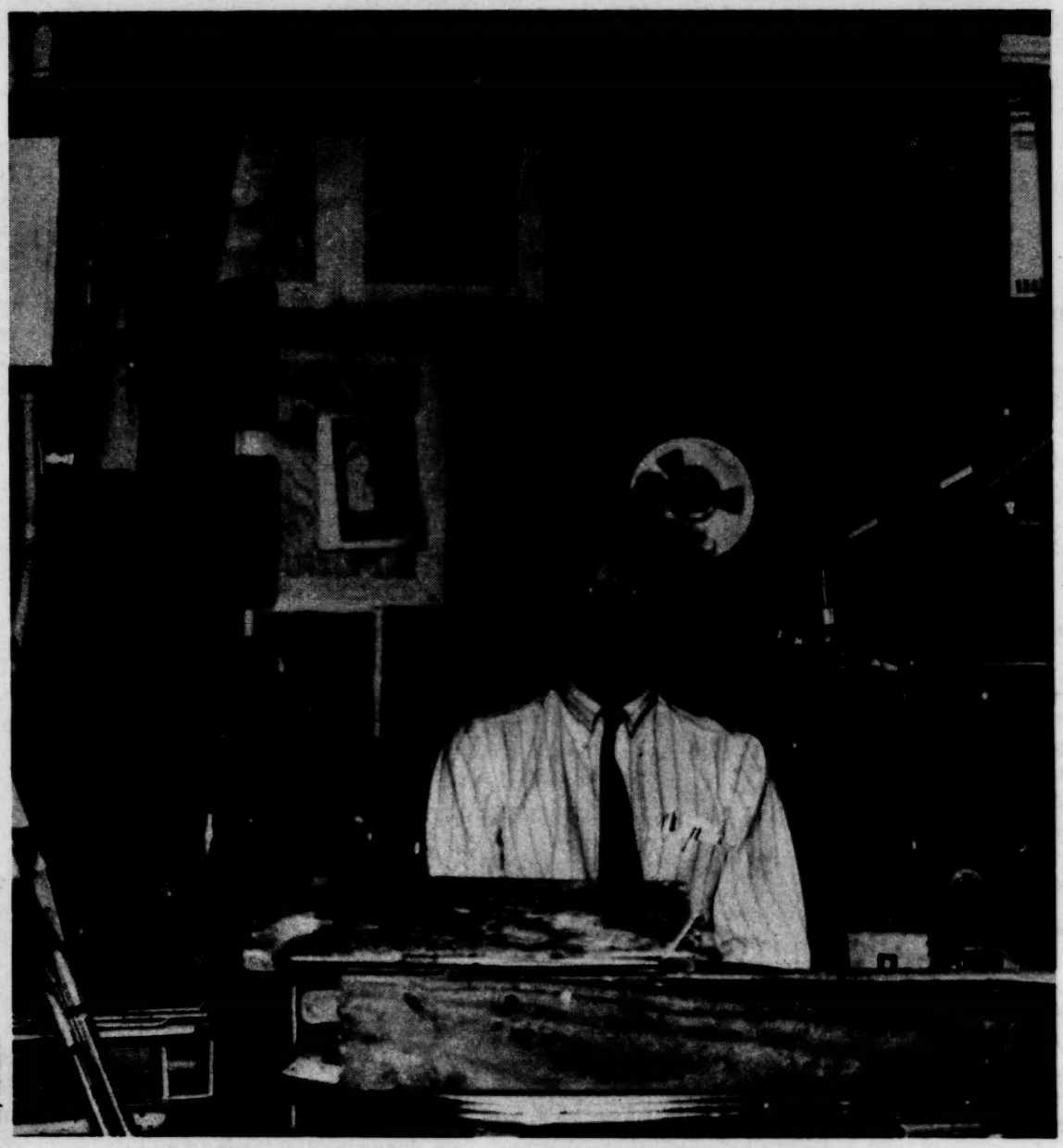
Instant assistant. Doesn't mop floors, but does take messages, reads them to you when you call in, records conversations on cue, and performs numerous other secretarial duties. No bigger than a paperback book (it uses tiny microcassettes), it's dependable and also cheap. This is the answering machine to get. —Kevin Kelly

Panasonic KX-T1622: $114.95; street price **$84** ($90 postpaid) from Whole Earth Access.

Location of Controls



NO MORE PISSY ROCK STATIONS LEAKING DOWN ON OUR HEADS



Mary Randlett

The author in the control room of KRAB, Seattle, 1968. He says, "It was one of the first do-it-yourself community radio stations, and those things hanging on the ceiling are egg cartons, reputed to be good for absorbing echoey sounds of John Cage music and folk songs of Serbo-Croatia."

BY LORENZO W. MILAM

THE UNITED STATES HAS 521 SATellites floating around somewhere over our heads — taking pictures, transmitting military information, generally snooping on The Enemy, whoever that may be this year. Most are owned and operated by what we used to call, in a more honest and scenic age, the War Department.

Of the forty or so satellites available for non-ruination purposes, twenty-one are of interest to us here. These are called C-band satellites. They carry 150 or so television signals aimed at the United States, Canada, and Mexico. A majority of these are broadcasting twenty-four hours a day, some with scrambled signals. The rest are part-timers, on a demand basis.

Each of these "networks" can carry up to eight voice-and-music audio services on subcarrier. A subcarrier is a hidden channel snuggled atop the video channel. You have to search for these — Easter-egg style — but the newer satellite receiving equipment is making it easier and easier for the dish owner to do so. Right now, there are over 75 radio services up there, and the number is growing. We figure there's room for at least another thousand stations, broadcasting from the tallest transmitter tower of them all, soaring some 22,300 miles above our heads.

The rewards might be great — and I am not necessarily speaking of moolah. Given the figures for ownership of receiving dishes (almost 2,100,000 in the United States — with an additional 1,500,000 in Canada, Central America, South America and the Caribbean), we believe there are thousands of potential listeners out there. Further, it's a growing business: almost 18 percent of Americans rate satellite receiving dishes as their desideratum — right up there with hot tubs and poodle perms. *TVRO Dealer* magazine estimates that the home dish population is growing at the rate of 27,000 a *month* — and the Idiot Level on the equipment has dropped so low that even a dummy like me can figure out how to tune in the grand and elegant (and noncommercial) classical musical programs of the CBC, carried

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Lorenzo Milam is renowned as "the Johnny Appleseed of community radio." In a blazing period of 15 years or so, Milam founded or co-founded roughly a dozen community radio stations, and was spiritual father to the whole concept of community radio. He and his cohorts were the first to make good on the promise of noncommercial, "listener-sponsored" radio birthed by Lewis Hill and Pacifica Radio in 1949 with KPFA-FM in Berkeley, CA.

Even more essential was Milam's role as the John the Baptist of community radio. No one else could have been the rapturous prophet, beckoning restless listeners with visions of Radio-As-Embodiment-of-Small-D-Democracy. In creating an alternative to the huckster broadcasting that dominates the industry, he didn't settle for either the "political babble-rabble school of radio" or the "educate 'em dead school of institutional broadcasting." He says in Sex and Broadcasting *(his 1975 classic on starting a radio station, unfortunately out of print), "A radio station should not be just a hole in the Universe for making money, or feeding an ego, or running the world. A radio station should be a live place for live people to sing and dance and talk: to talk their talk and walk their walk and know that they (and the rest of us) are not finally and irrevocably dead."*

To this pathfinder, any community-radio activist or listener owes a great deal.

—Phil Catalfo

Here's more advice and inspiration from Lorenzo on community radio, but now it's — via satellite. Or you can start your own television or radio station. Visionaries never sleep. *—Jeanne Carstensen*

on six different subcarriers of Anik-D, the Canadian satellite.

Satellite transmission, more than any broadcast medium we can think of, is pure Adam Smith. Anyone who has the money, or the smarts, or both, can be transmitting from satellite. It's cheaper to establish than terrestrial broadcasting (the transmitters and antennas are already in place). And it falls into what the government terms "common carrier." This means there is no censorship over what is broadcast.

(American Exxxtasy Network, for one, broadcasts endless, shameless, lubricious and lascivious sex-juice programs from SpaceNet 1, Transponder 2. [Even the scrambling system can't hide all the ham and cheese involved in these escapades.] Satellites, like much of our technology, can be unwittingly democratic. Exxxtasy rolls around up there cheek-by-jowl with the Christian Television Network, next transponder over, and Bonneville International — the Mormon Church — next to that one. All of them conjoined in the heavens, sloshing about on the biggest waterbed of them all.)

Until recently, this whole radio pie-in-the-sky scheme was too expensive for us to even consider, but it is a buyer's market and prices are coming down, and they will continue to do so with each new satellite that is launched. It reminds me of the old days of FM when you and I could just pop an application into the mailbox, get a permit from the government for free, and go on the air. You may remember those days — it was called free speech, and it was grand.

The prospect of satellite radio is exciting, but it's also chancy. As with all other real estate — and radio frequencies *are* real estate — it's a matter of location, and of timing. You have to do lots of searching through magazines and FCC releases and telephoning to find the owners of transponders, or of existing video networks. You have to talk the network and the uplink people into letting you use their space for not too much money (uplinks squirt the broadcast signal skyward, to be picked up by the satellite for retransmission back to Earth).

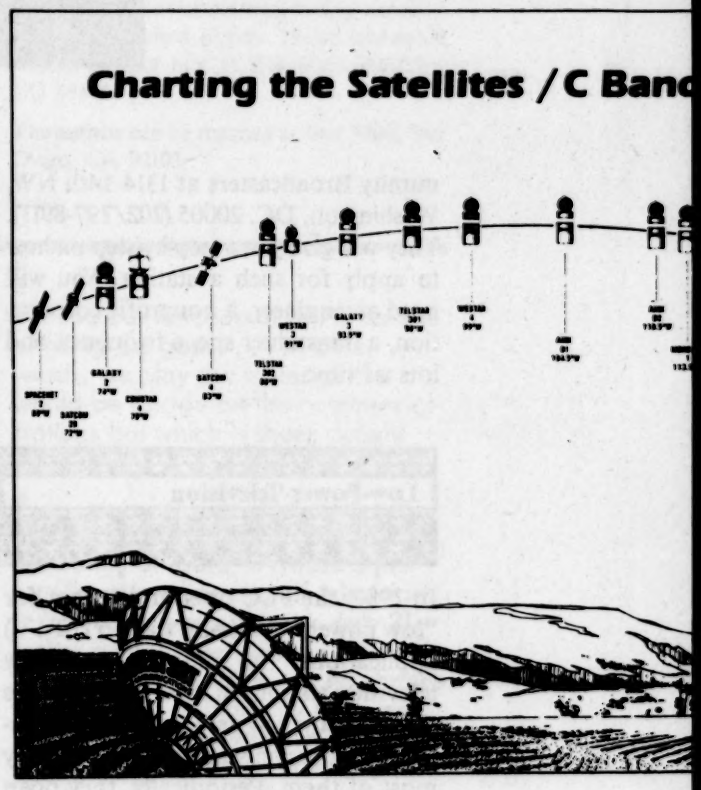
To get started, you have to find out who is already up there. Of the satellite magazines, there's *Westsat,* which is accurate if brief. You could look at a copy of one of the three home consumer satellite magazines: *Orbit, Satellite Dish, Satellite TV Week.* I recommend the last because it is the most up-to-date and comprehensive. They have 450,000 subscribers, all over the western hemisphere, 70 percent of them in rural areas. (All of the magazines list the active transponders, audio and video.)

As a potential broadcaster of international satellite radio, it is essential that you become a consumer. Receiving equipment (called TVRO in the trade) is getting cheaper and cheaper. I have recently seen complete systems for between $500 and $900 for those who are willing to install them on their own. There is much fascinating stuff going on up there with the birds. Watch everything, even the awful (and sometimes very funny) religious programming. You have much to gain by learning the difference between Galaxy 1 and Galaxy 3, and by going from transponder to transponder, viewing the wonderful diversity being beamed down on us. In sound, you can experiment with leaving the standard 6.8 mHz audio channel and running down to see what is going on around 5.4, 5.76, 5.94, 6.2, 6.3 mHz — the most popular audio frequencies. Listen to what those who are already there are doing, and why.

By watching and listening, you can locate the eleven satellites and twenty-nine transponders that already carry independent radio. They are the most obvious for renting piggyback space. To find the home office of the network, you can call any of the satellite magazines and ask them to supply you with their network list. The location of the network offices, whether it's CNN or C-SPAN or A&E, is not necessarily the uplink location. And the uplink location is vital: if you are going to piggyback atop a video service, you have to deliver your song-&-dance to the point where they are transmitting to the satellite. If you live in Dogbone, FL, and rent space on an uplink in Porkpie, UT, you have to get your signal some 2,500 miles across country. This will probably double your monthly cost. You can't afford that. Find out what's going on in your own city. One of the best places to start is in the Yellow Pages under "Satellite Communications Services — Common Carrier" or (confusingly, junked together with your local satellite home dish installation companies) "Satellite Equipment & Systems." It just may be that an important, full-time network has an uplink in your area.

If you have found one nearby, you have to negotiate not only with the network, but with the uplink service, too. Uplink should cost about half of the piggy-back space itself, but it depends on what agreement they have with the network. I would quote some prices here, but the situation is so weird and fluid it has all the characteristics of looking for an apartment in Beirut. I have heard quotes as high as $45,000 a month and as low as $2,500 for both uplink and transponder space, but that was last month: god knows what they are doing today.

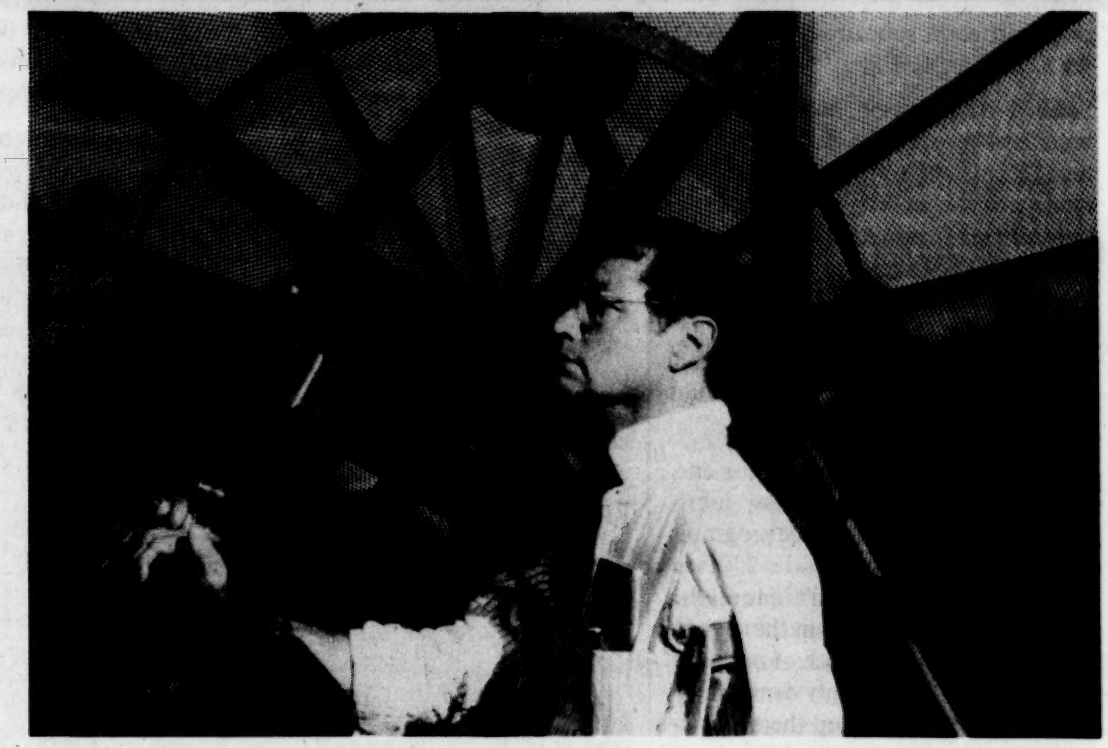
If you are able to get the necessary agreements, you will have to set up a studio to handle your announcing, records, disks, and cassettes. There are already some folks who are doing satellite radio, although their programming definitely leaves something to be desired. There's American FM radio in Salt Lake City, and K-SAT in Gilroy, California. You might call them and ask how much it costs, and where *their* uplinks are. But for god's sakes, if you are going to program from satellite, try to do something original. We really don't need another pissy rock station leaking down about our heads now, do we?



OUTSIDE OF SATELLITES, THERE are still radio and television facilities up for grabs which make it possible for interested media freaks to get on the air.

Non-commercial FM

The most inexpensive way to become a broadcaster is to put a noncommercial FM station on the air. This will only work if you are out in the boondocks (at least 150 miles from the nearest major city). It might cost you $10,000 to begin broadcasting, but it will be less if you are smart, careful, patient, wily, and know how to steal FM transmitters under cover of darkness. Make contact with the National Federation of Com-



Lorenzo in his "satellite garden."

Tom Hanton

munity Broadcasters at 1314 14th NW, Washington, D.C. 20005 (202/797-8911). They will give you a step-by-step on how to apply for such a station. You will need an engineer, a nonprofit corporation, a transmitter site, a frequency, and lots of time.

Low-Power Television

In 1980, the FCC opened the door for "low power" television station (LPTV) applications. The rules permitted new television stations in most markets. The Commission was deluged with applications, and has only recently cleared away most of them. Periodically, they open doors — called, naturally, "windows" — for further applications. These are announced in the trade magazines like *Broadcasting* (which is too expensive to subscribe to, but which you can find at your local public or university library).

Channel 2-13 (VHF) LPTV is *really* low power (ten watts maximum, which might not carry more than half a mile). For UHF (Channels 14-69), you are allowed transmitter output power up to 1,000 watts. With a clever antenna system, and multiple transmitters, you might be able to cover a fairly major service area.

The VHF stations are cheap, but the UHF transmitters can cost at least $25,000, and the antennas another $10,000. The rules on the programming and operation are quite lax — the FCC gives you enormous latitude on what you can program.

(We thought of getting an LPTV station on the air, running continuous slides of the kid's birthday party from last summer, footage from NASA [all space shots are in the public domain], and home movies collected from all the neighbors. We'd play some bizarre and wonderful music on the sound channel — gagaku from Japan, Balkan folk singing, songs of Henry Purcell, Blind Lemon Jefferson. What a way to spend an evening, no? Launching into space with the Monkey Chant, landing on the moon to "Sound The Trumpets," walking the Mare Incognito with "The A-to-Z Blues." Under the LPTV programming rules of the FCC, it's all legal.)

What I have told you about Low Power Television is worth a mere pickle. The real kicker is how you can get close to going on the air with little or no effort on your part:

Because of the first application rush, the FCC was forced to set up a lottery system so they could process them all. In the last three years, the Commission has made over 4,000 grants of LPTV stations all over the country, including Alaska, Hawaii, Puerto Rico, the Virgin Islands, Guam, and Micronesia. However, many of the people who got permits aren't building. There are no more than 250 LPTV stations on the air right now.

The Commission doesn't take kindly to grantees who hold onto the permits and never build. Unless they have very good excuses, they are forced to surrender them a year from the date of grant. This can be a bonanza for you. What you have to do is to find out what permits have been granted for your area, or the city or cities you're interested in. From this information, you can make contact with the permit holders. If they have lost their permit, you can perhaps pick up the transmitter site option, and file your own application, using some of the information from their (successful) application. If they still have the permit, but are running into difficulties building the station, you might be able to negotiate with them. In return for your helping to get the station on the air, you might be able to share the ownership. At worst, you can learn a great deal by talking with the people involved, and reading over the applications that have been filed, gone into lottery, and been granted. Even those that have lost out will teach you what is available in the way of equipment and sites. This is basic FCC form school; how to put an application in the hopper and (perhaps) how to win.

(To do all this, you need a copying service in Washington, D.C. that specializes in FCC Releases. A good one is Berry's Best, 1705 DeSales Street NW, Washington, D.C. 20036. You can hire them to dig up any filing at the FCC that you might want to see. I would ask for copies of the winners' names from the last two years' worth of lotteries.)

Commercial AM Stations

A subtle and largely unnoticed phenomenon over the last few years is the drastic drop in the price of AM stations. With the onslaught of FM, Cable, and other electronic spaghetti, these stations are losing their listeners. At the same time, almost every home and car has an AM radio — and it is our contention that someone doing some truly original

programming on AM could attract a horde of listeners. *Broadcasting* magazine regularly lists stations for sale. If the listed prices make your eyes turn to pinwheels, remember (1) radio stations are like real estate — the asking price is not necessarily what they will take, and (2) there is always the famous E-Z Squeezy process, where you come up with 10 percent down and the balance over the next seven to ten years.

New Commercial FM Stations

The FCC continues to announce new frequencies available in smaller communities for commercial FM outlets. The problem with applying for one of these is that everyone and their brother has the same idea. I have seen frequencies in Dinkwater, OH — pop. 655 — with eight or ten applications filed. It's a crap shoot. If you apply, and if you can talk the other applicants into dropping out (horse-trading is encouraged by the Commission) then you can get a free permit to build. However, if even one other applicant stays in, you get to go through a nut-crushing comparative hearing which will impoverish your wife and drive your children to drink. The best source of information on frequencies opening up is the FCC release service Berry's Best (see above). Ask specifically to be sent releases about new FM frequencies opening up in your area. If you decide to apply, you will need a broadcast engineer and an attorney. All licensed ones are listed alphabetically in *Broadcasting Yearbook*, which should also be at your local library.

Short Wave

The FCC will license any fool, thief, charlatan and/or fundamentalist minister to own and operate a short wave station. All one has to do is fill out the appropriate form — Form 309 — stating location of site, transmitter, owning entity, and target country — and send it off to Washington. Licensing is fairly easy. There are two major problems. (1) The transmitters sell for $250,000 to $500,000; and (2) the power bills are hideous (costing, every year, a third again as much as the transmitter — the minimum poop required is 50,000 watts). If you own a power company (or a foreign country) this might be just the ticket for you. Otherwise, it's a tough call. The advantage of short wave is that if you are in one part of the U.S., such as Florida, and aim your signal directly across the U.S. at, say, Moose Jaw or Chilliwack, you will hit most of the U.S. I think there are more American short wave listeners out there than anyone suspects. They listen, consistently, for news programs from overseas because they believe them to be more honest, rational, and information-filled than the local TV low-budget bludgeon-and-rape piddling that you and I have been suffering with for so long.

HOW NICE IT WOULD BE to hear some ethnic music from out there in hyperspace, Ravi Shankar floating down over the Galapagos, the sound of tabla and sitar cascading down on the backs of the Pacific turtles, and the blowfish, and us — covering some 2,000,000 square miles of land and sea and air with music and talk that's fresh and honest and distinctive for a change. ■

NOTES

The key satellite reference book is the newest edition of *World Satellite Almanac* by Mark Long. It contains a list of communications satellites, with a description of which transponder is doing what to whom (and where!). It's $34.95 ($41.95 postpaid) from MLE Inc., Box 159, Winter Beach, FL 32971.

Although it's somewhat out of date, the best general introduction is Jeff Keating's *The World of Satellite Television.* It can be ordered for $10.95 from Quantum, Box 310, Mendocino, CA 94546.

Satellite TV Week is available from Box 306, Fortuna, CA 95540 for $48 a year. *Westsat Satellite Communication Chart* costs $24 a year and can be ordered from Box 434, Pleasanton, CA 94566.

John Schwartz — who founded the only community television station in the country (KBDI, Denver, CO) — has organized a group to lease transponder space for full-time alternative *video* programming aimed at the entire United States. Those interested should contact him at Box 6060, Boulder, CO 80306.

The author can be reached at Box 3490, San Diego, CA 92103.

The Radio Papers

A collection of reflective essays taken mostly from his fertile years of station-spawning, ***The Radio Papers*** *expresses Lorenzo Milam's worship of "The Great Aether God," the alchemical, disembodied medium which holds him — and us — in its thrall. By turns bemused, polemical, and absurdist, the essays are at root the prayers of an idealist who sought not only to revolutionize broadcasting but also to awaken a culture from its brutalizing sleep. That he didn't completely succeed explains the exhaustion and bittersweetness of the last few pieces; but by reissuing these musings, Milam seems to be proclaiming anew his faith in the idea that human-centered electronic media is not only worth doing, but do-able.*

—Phil Catalfo

•

We see radio as a means to the old democratic concept of the right to dissent: the right to argue, and differ, and be heard.

As long as this country has existed, this right has been more or less accepted. The only problem is the difficulty of *circulation* of these different opinions.

•

We see our function at KRAB as one of filling the gaps. . . . In other words, we play the material that would be suicide on the commercial stations but which is sheer delight for us.

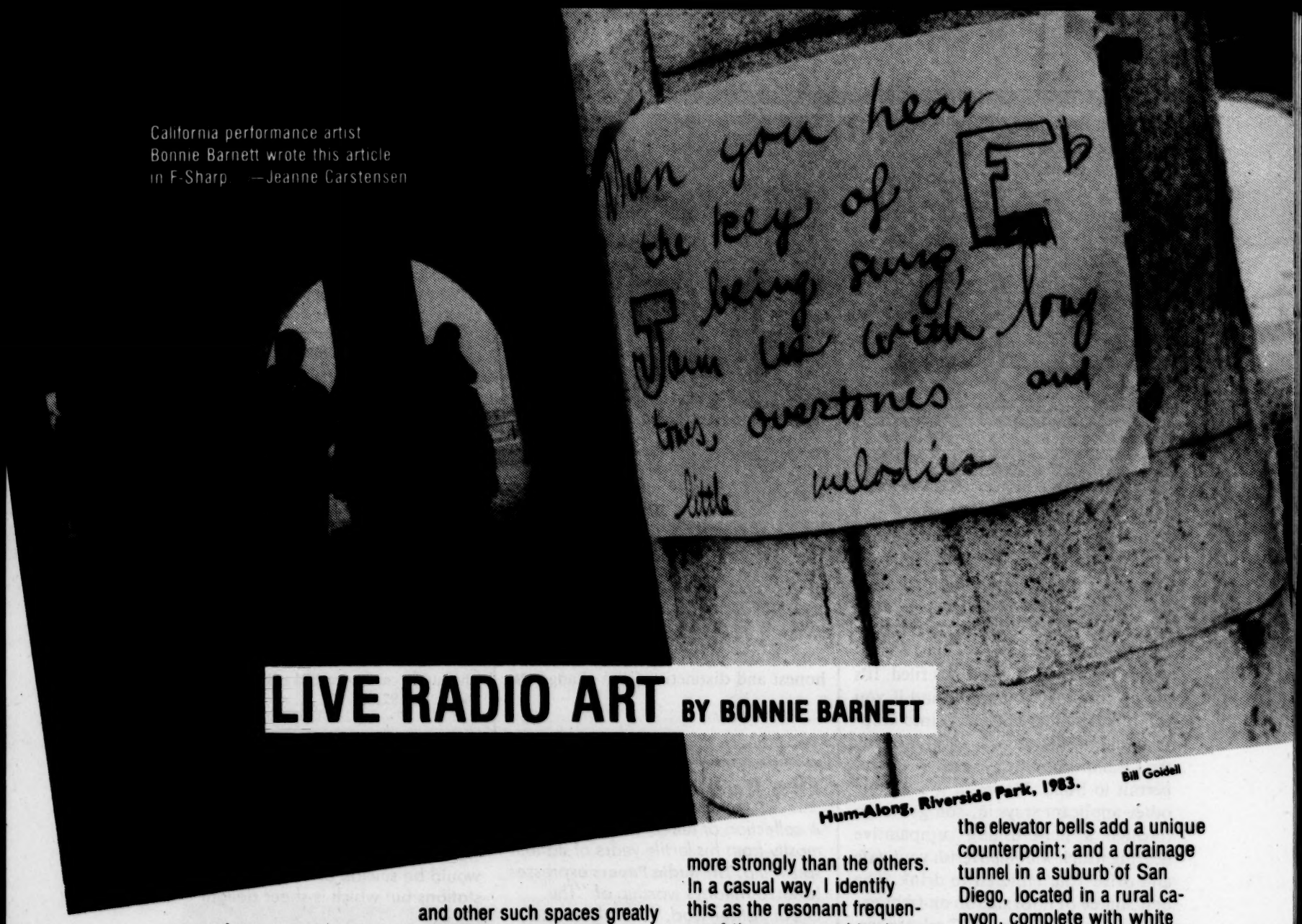
•

We have always been convinced of the ability of radio to create a picture far exceeding that of television. In the latter, one's vision is only 21 inches across. Everything is laid out for the senses, and there's no chance for the game of unreality to creep in. We like to remember that good radio, with a word or an effect, can create a world in the imagination that is at once unreal and yet intensely personal.

The Radio Papers
Lorenzo Wilson Milam
1986; 166 pp.
$9.95
($11.45 postpaid) from:
Mho & Mho Works
P. O. Box 33135
San Diego, CA 92103
619/488-4991
or Whole Earth Access

Coal miner listening to the radio, 1928.

California performance artist Bonnie Barnett wrote this article in F-Sharp. —Jeanne Carstensen



LIVE RADIO ART BY BONNIE BARNETT

Hum-Along, Riverside Park, 1983. Bill Goidell

ONE OF THE AVENUES "new music" is taking these days is to circle back around to prehistoric times, when people sang and danced as part of their daily lives. "Process scores," usually written in words, outline a procedure that all participants agree to follow. There is no proscenium separating audience from performer — all are involved in making music.

I have been composing and producing what I call Tunnel Hums, participatory vocal events taking place in acoustically interesting environments. The public is invited to come together for an hour or so, and essentially to improvise in one major key. The resulting tapestry of sound is very much like a harmonic sound bath. During the course of taking vocal students on weekend picnic/songfests, we discovered interesting-sounding pedestrian tunnels in the Bay Area. Everyone who has driven through a big tunnel knows how irresistable the urge to whoop in the tunnel is. This is because tunnels, domes, and other such spaces greatly amplify or enhance sounds made within them. Hence the concept "Tunnel Hum."

Much of my motivation compositionally is to provide a forum for large groups of people to "tune," with each other and with the environment. From early childhood onward I have been concerned with harmony — a term which has several layers of meaning.

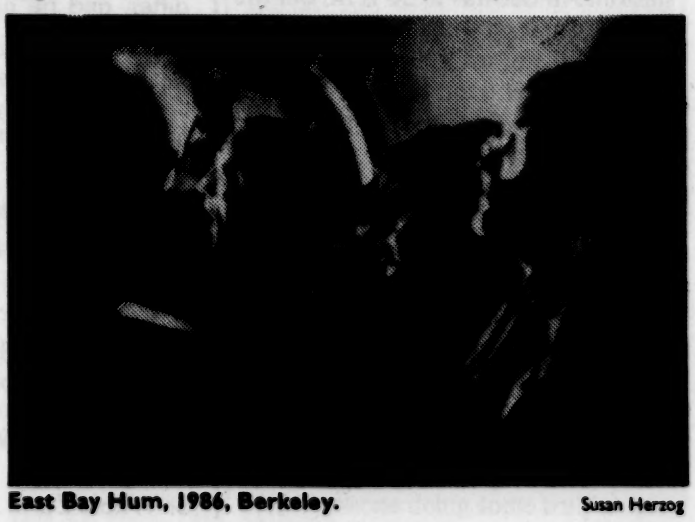
The statement I've been making lately is: "When you're in tune, you're in tune."

That is, if several hundred singers are literally in tune (say, E♯ major) for an hour, they are also "in tune" or "tuned in" with each other. Music harmony as the paradigm for total harmony.

When I go tunnel shopping and find an interestingly resonant space, the next step is to determine which note the space likes best. I perform a simple sonic test: I sing short notes down a scale, covering an octave, and listen to the decay of the tones in the space. There is always one note — sometimes several — which rings more strongly than the others. In a casual way, I identify this as the resonant frequency of the space, and try to arrange to have the Hum performed in that key. (When I produced a Hum at 30,000 feet, in a moving airplane, I did check with an aerophysicist to assure myself that we would pose no safety hazard in that specific environment.) Thus, we tune not only to each other, but to the immediate environment in which we are singing.

I have chosen sites for their visual impact as well as their sonic qualities. Some of my favorites include San Francisco's City Hall Rotunda, huge and cavernous, where the elevator bells add a unique counterpoint; and a drainage tunnel in a suburb of San Diego, located in a rural canyon, complete with white rocks and a little water.

For me, a natural extension of the acoustic Hums was to conceive of a live radio event, broadcasting live singers over the air for radio audience "hum-alongs." I was able to use this technique in the Auto Hum (1985), live at KPFK-FM in Los Angeles, broadcast on a Friday afternoon for car commuter participation, and America Hum (1986), a live event at the New School for Social Research in New York, broadcast live all over WNYC-FM for participation by radio



East Bay Hum, 1986, Berkeley. Susan Herzog

listeners all over the New York area.

National Public Radio's now-defunct Satellite Program Fund made me aware of the ease with which events in more than one location can be mixed live via satellite technology, as well as the ease with which programs can be fed live to the over-400 public radio stations dotted across the U.S. I received a grant in 1983 to produce Tunnel Hum USA, which linked live singers in San Francisco and New York and fed the live mix to six participating public radio stations.

In both cases, San Francisco was the home site. The stereo signal from each other city was sent up 23,000 miles to bounce off two channels of NPR's Westar IV, and bounced down to meet the San Francisco signal in the satellite room at KQED-FM. The San Francisco signal got to the satellite room via special local phone lines. My assistant was in the satellite room monitoring the levels of the various signals coming in. All these signals were mixed down to a stereo mix in that satellite room, and immediately sent back up to two **more** channels on Westar IV, where it became available to the participating stations for the live feed.

Bonnie Barnett and Jon English (bass). Susan Herzog

It takes one-fifth of a second to bounce a signal up to Westar IV and back down, and another fifth of a second to send the live mix back to the participating stations. One intriguing and, indeed, almost magical point about this delay was that if people in New York, for example, had on their walkpersons, they could sing along with their voices of two-fifths of a second earlier. In fact, this happy event was capitalized upon in order to keep the three groups of singers in tune with each other.

The next step for me is clearly a Global Hum, linking live singers in several cities worldwide and broadcasting the live mix to many more cities for a truly worldwide participatory sing. I am at present developing the network of people necessary to carry this project out, and may in fact be able to produce a first-stage effort involving two countries sometime in 1988. I also confess to fantasizing about an Intergalactic Hum, which would obviously need a lot more outreach than perhaps is possible at this time. Any ideas, brainstorms, or networking possibilities related to the Global Hum would be welcome, and can be sent to the author c/o Imaginary Landscape, KPFK-FM, 3729 Cahuenga Blvd. West, North Hollywood, CA 91604. ■

Pacifica Radio Archive

Public radio brings us programs we'd never hear on commercial radio. Poetry, international issues, voices of minorities and live history confront us over the airwaves. If you missed the original broadcast, Pacifica National Archive probably has it on cassette. The current catalog lists over 300 selections from their collection of over 22,000 recordings that date back to 1949. (A complete listing of material is available on microfiche, as well.)

So if you're curious about what Marcel Duchamp has to say about Cubism, or would like to expand your horizons with Dr. James S. Pickering's History of Astronomy, it's there for the hearing. —Kathleen O'Neill

Pacifica Radio Archive
Catalog **free**;
Microfiche
$26 postpaid from:

Pacifica Radio Archive
Educational Service
5316 Venice Blvd.
Los Angeles, CA 90019
213/931-1625

The Philippines
A program that traces political developments in the Philippines from 1946 to 1975, and points out how the U.S. Army and the CIA had become deeply entrenched in the Philippino government, leading up to the declaration of martial law. The material is taken from the writings of William J. Pomeroy, who fought in the Philippines in World War II and who fought with the HUK guerilla movement from 1950-1952. Produced by Jim Berland and Tim McGovern. KPFK, 1975.
Catalogue No. BC2268 53 minutes $13

Grenada: The Fall of the Revolution
Based on the recordings of two reporters living in Grenada since 1982, this program chronicles the events leading up to the invasion by U.S. military and life under the U.S. occupation. Also described is the difficulty that one of the producers experienced trying to get out of Grenada. The program contains many on-the-spot recordings of events such as Prime Minister Maurice Bishop's release from house arrest and interviews with many government leaders about events there. Amina Hassan and Don Foster, 1983. Winner NFCB Award.
Catalogue No. SZ0224 60 minutes $13

Black Woman Artist
In this interview, Howardina Pindell discussed the difficulties of Black artists, women artists, and, in particular, Black women artists. Clare Spark, 1973.
Catalogue No. BC1986 62 minutes $13

Changes
Alan Watts, Timothy Leary, Gary Snyder, and Allen Ginsberg discuss LSD, art, and life. 1967.
Catalogue No. BB1849 71 minutes $15

New Dimensions Radio

New Dimensions Radio bounces its programs off a satellite to 140 stations in 30 states, and features excellent interviews with everyone from Bucky Fuller and Paul Hawken to Wendell Berry and Ram Dass. For a counterculture first, they'll soon go out on shortwave to the entire danged hemisphere via a transmitter in Costa Rica. A postcard will bring you programming info as well as a catalog of 1,000 cassettes that are available. —Dick Fugett

MAY 3, 1987
AFGHANISTAN: ANOTHER HOLOCAUST?
with ROBERT CABOT AND BOB FULLER.
The Afghan-Soviet War could be called the "invisible war," since it is largely unnoticed in the west. Yet more than 5 million Afghans are refugees and estimates of the dead range from 1 to 2 million. Here two principals of the Mo Tzu project, a citizens diplomacy endeavor, who have recently visited the Afghan refugee camps on the Afghan–Pakistan border, report the facts as they have observed them. What emerges is an astounding story of chaos and courage, which may offer a unique opportunity for bringing the super powers closer together. Robert Cabot is a former diplomat and Bob Fuller is past president of Oberlin College and founder of the Mo Tzu project.
(Tape #2044 1 hr. $9.95)

Network News
Justine Toms, Editor
$35/year
(6 issues; membership includes discount on products, etc.)
Sample issue **free** from:
New Dimensions Foundation
P. O. Box 410510
San Francisco, CA 94141
415/563-8899

MAGIC WORDS
with ROBERT BLY.
We take our title from an Eskimo poem recited by Bly during this extraordinary dialogue with one of America's greatest contemporary poets. Bly brings us in touch with the deeper chords of consciousness residing in us all. He is the author of nine books, including *Light Around the Body* (Harper & Row 1967), which won the National Book Award.

(Tape #1678 1 hr. $9.95)

The hand and eye can easily record complex relationships that no computer model exists for. Intuitive, casual drawings, like the earliest cave paintings, were actually drawn by the least understood and most sophisticated computers – the human brain.

A fascinating thing about the human ability to draw accurately is the apparent lack of data input required for the system to work. One just looks and sketches and the relationships are described pretty accurately on the paper. Most people require little instruction to be able to sketch (*Drawing on the Right Side of the Brain* by Betty Edwards, (EWEC p.322) is the classic manual) and even the most severely limited individuals can draw objects and illustrate spatial relationships.

People are embarrassed to sketch. It takes a lot of energy to sketch. Applying that energy causes you to lose touch with the concrete intellectual world that reinforces your sense of being. Sketching feels like a trance, you feel unusual, vulnerable, embarrassed. Tarot and sketching both deal with the visual and the intuitive and neither is legitimized as rational in western society. If you consider the amount of computing power the brain must utilize to sketch intuitively it will not suprise you that sketching feels like a trance. A benevolent frame of mind helps overcome embarrassment.

The rhythm of Picasso's stroke is a personal tool for locating spatial relationships by trial & error. Each of us has our own rhythm stroke. To draw a line, modify the part of your stroke that fits, or build the line with many small strokes laced together in a chain. Solid areas are built up with tiny strokes. Most people make a figure eight stroke, the sign of infinity.

Sketchy

Article written, designed, illustrated, and pasted-up by B. Ritchey.

Sketching as interpersonal communication allows us to tap the resources of universal understanding. Two or more people sketching together can become a think tank, their ideas and contributions producing a synergism. Laypeople can interact creatively with experts. It's a universal tool for clarifying and communicating ideas we already have but haven't expressed, ideas that are sometimes visionary.

Sketching is so simple and natural that it is often disregarded in our over-complicated society. It seems to have no practical value in a sea of words and numbers. But there are some obvious uses for sketching when describing the tactile and the mechanical.

Almost anytime you are trying to communicate the appearance, shape, texture, location, proportion, process, operation, construction or assembly of something physical and you find yourself gesturing wildly or sculpting the object out of air, you could probably explain it better with a crude sketch, a few words and gestures.

How can we best take advantage of this user friendly system that's portable and requires no power supply, cash outlay, or phone line? To make sketching commonplace, to make visual and spatial illustration part of everyday common language, we just need to sketch more and use that information by showing our sketches to

I prompted a friend to make this sketch for me. Sandra was describing a giraffe made of live ivy and I asked for a drawing showing the texture of the ivy in relationship to the size of the giraffe. I couldn't picture it in my mind's eye without that information and that is a lot of information to express with words. This little sketch is part of a conversation. It prompts memory and thought differently than a video tape of the conversation would.

The sketch of the house, also by Sandra Miller, was drawn on grid paper to aid communication with painters, craftpersons, etc.

Although the two sketches look very different both contain a common freehand pattern.

one another. To make this happen, the sketch book needs to become commonplace like appointment books, desk calendars, and briefcases; and we need to understand that sketching is part of our everyday language.

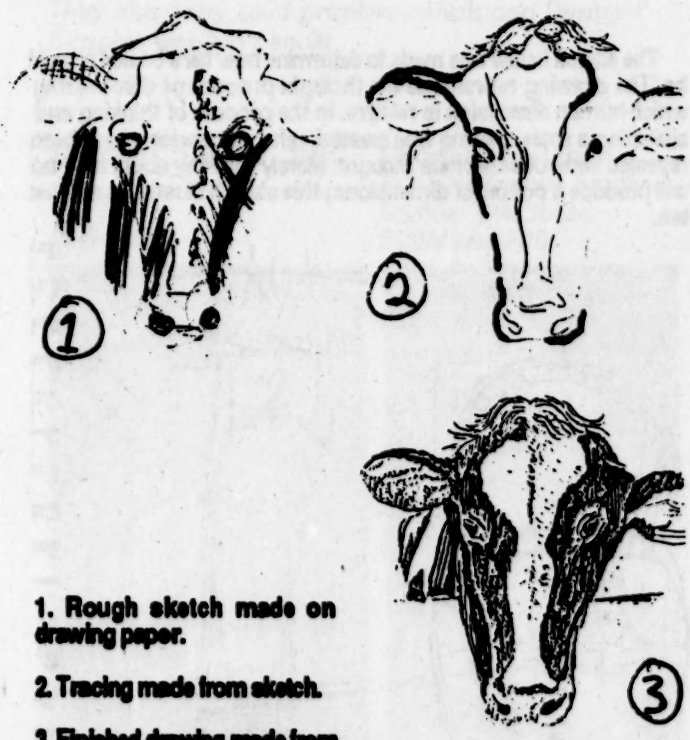
The easiest way for most of us to begin sketching is to buy a sketch book. Go to several art stores so you have an idea of what's available and get a few books that you like the feel of. I recommend getting more than one because you need to scatter sketch books throughout your life if you want to get the full advantages of being a free sketcher. Also it's good to have sketch books of varying sizes and paper types. You can own for instance: a small pad of high quality technical drawing paper for your wallet or pocket book, a larger pad for your desk or briefcase and at home you might enjoy a monster sketch pad hung on the wall. Having sketch books of different sizes will do more than just allow you to keep a book in each of your organizational spaces. It will allow you to vary the scale of your drawings and this is an important technique for increasing the amount of information you can capture and express. For some reason, sometimes, you can't draw your idea on a big piece of paper, but moments later you can draw it just the way it should look on a matchbook cover.

The author/designer sketched the headline, the typographer identified the size and style. Describing the headline with words and numbers would have taken more time and without the sketch, would have required the designer to guess or calculate. Most graphic designers can communicate in typographical terms, but they often sketch their ideas for better clarity.

Tracing paper allows you to store, expand and improve the information contained in your sketch without changing the sketch. When you've worked on a sketch until you can make it no better, you are ready for tracing paper.

Slide your sketch into a tracing pad and draw out everything you want to keep and begin again. You can rub graphite on the back of this tracing and transfer the clean drawing onto any paper you like. With tracing paper you can produce variations of your sketch and compare them side by side, an advantage you lose when you erase.

Designers and animators often begin sketching at the rear of a tracing pad and work to the front, producing a movie of thought process.



1. Rough sketch made on drawing paper.

2. Tracing made from sketch.

3. Finished drawing made from tracing.

I can give you a good example of how drastic the importance of scale can be. When I was teaching mentally handicapped children, I had a student who couldn't print the alphabet because he didn't understand that some of the characters were made with diagonal strokes. He did fine with Os, Hs and Ts but was stumped with Ws, Ys and Zs. This was despite years of training with lettering templates and one-on-one demonstration. The diagonal printing stroke is a little subtle in handwriting but it's not when you're making letters three feet high. I stood behind the student, both of us facing the blackboard and gripping a piece of chalk. We stood like the person in the famous Da Vinci sketch and drew circles and squares with our whole bodies. Then we drew circles and squares as small as possible at eye level. We divided the square horizontally, vertically and diagonally at both scales and then began writing the alphabet. We made a letter with our bodies and then at the size of normal handwriting. By

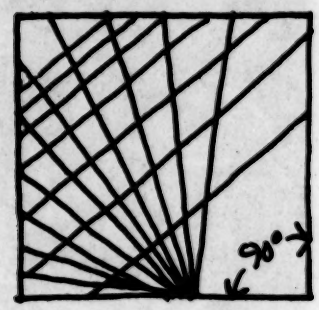
Jana Larson made this sketch with burnt matches while talking about her geographic ideal of home. The sketch was done on a bright gold memo pad from a taxi company. She recently moved to a land where the flowers bloom in golden meadows all year long.

the time we reached letter K, the student understood how to make the diagonal stroke and has had no problem since. Most normally functioning humans would experience the same profound level of improvement if they would experiment with sketching at different scales. So you really do need to surround yourself with several sketch books of different sizes.

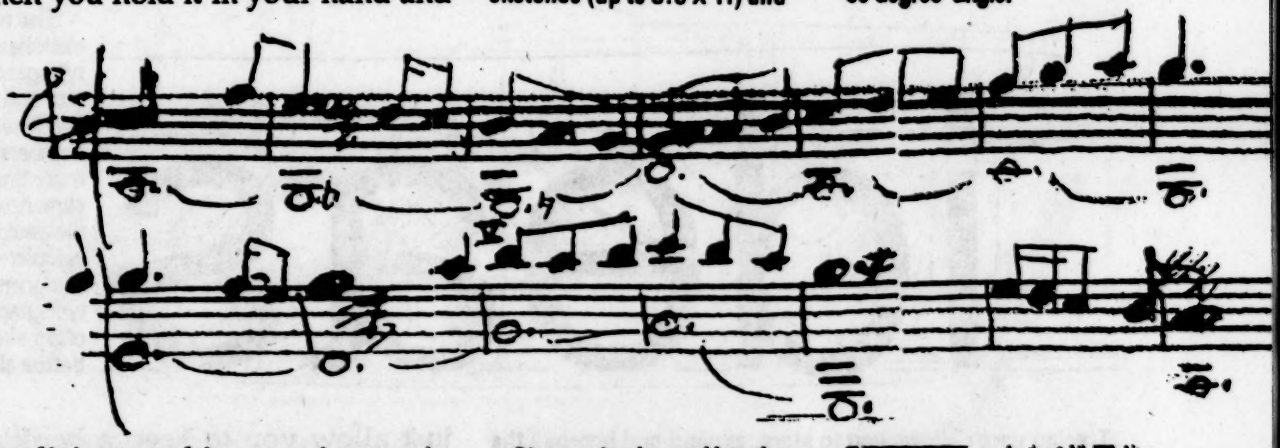
The feel of your sketch book is as important as the size so don't buy a book of paper that doesn't make you feel like sketching. I can't offer any examples about the feel of paper and what feeling paper can do for you. But paper making is both an ancient art and a modern science. Advertising agencies spend fortunes to learn about the persuasive characteristics of paper, so you can be certain that a sketchbook that makes you feel like sketching is the one you're most likely to buy. It might be the weight, the color or the size: but when you hold it in your hand and feel that big visualizing machine revving up in the right side of your brain you may be holding a sketch book you need to own. The same advice holds true for all drawing tools. You might remember how easily a new box of crayons could break colorer's-block; a problem, by the way, that never gets the literary attention it deserves.

Two of the most user friendly drawing tools are the Bohemia Works solid graphite pencil and the Derwent Graphic wooden pencil. You can break the Bohemia Works pencil and use it like charcoal. A small pocket sharpener and possibly a sandpaper pad are sufficient.

Artists keep their drawings in portfolios, expensive books with expensive see-through pages. Now there is an inexpensive system of portfolios by Itoya. They are good looking, durable and have fixed pages with removable backing sheets. They come in a variety of colors, including some with clear covers. The small ones have 6 pages (12 views) and the largest holds 60 pages (120 views). They are perfect for storing small sketches (up to 8.5 X 11) and for organizing topical information in one book. The spine has a pocket and a nice label so you can remember what's inside.

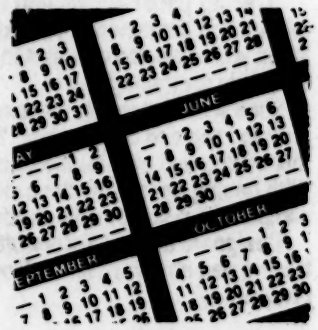


You can divide any area of your sketch by folding a piece of paper. Specific squares, triangles, rectangles may be made the same way. You can also crease grids or guidelines on a sheet before drawing on it. The corner of a page is a 90 degree angle.



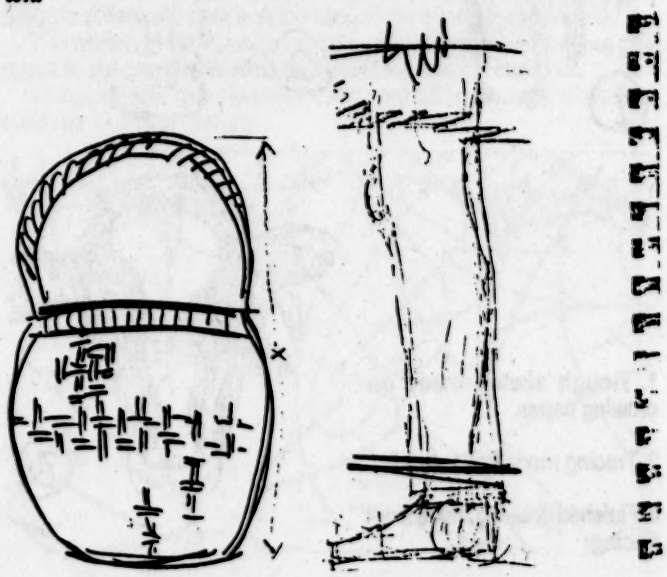
While you're at the art stores looking at sketching books (and pencils, pens, conte, etc.) you should look at the sheets of paper in those big thin flat drawers. This is where they keep the good stuff.

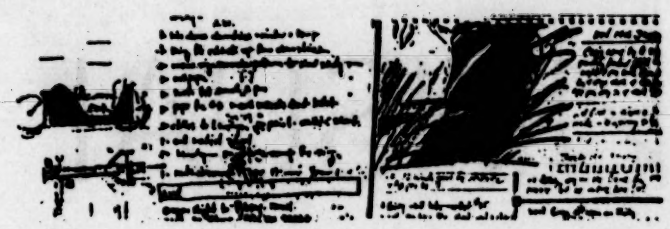
You should look through all those flat drawers for two important reasons. The first reason is that you can learn more about paper by looking through all the paper drawers in a well stocked art store than you can by reading a book about paper. (The tactile can be more informational than a thousand textural adjectives.) Hot press, weight, tooth, rag, deckle, color, calendering, filler, bulk, opacity, hold out, etc. will make more sense to you when you are right there looking down at wide flat drawers containing thousands of dollars worth of human achievement and heritage in the flat white form of ancient art and modern science called paper. While you're looking at this living museum of world class paper from around the globe realize that you could make all of the fine paper you could use right at home in your



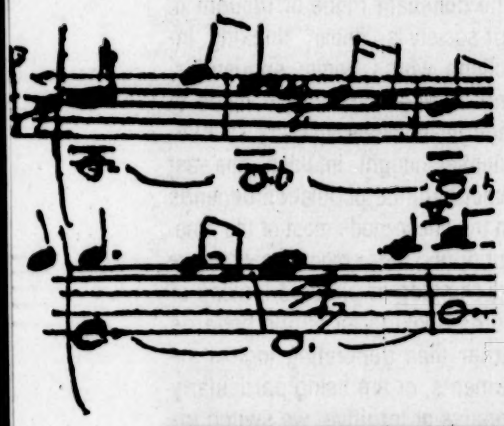
Glue a calendar card into the cover of your sketch book and use it as your central record-keeping and appointment book. The graphic modules in most appointment books restrict you to a specific and predetermined organization of time. With a calender and a sketch book you can design your own visual reminders as the need arises.

The sketch below was made to determine how tall a basket should be. The drawing represents the thought process of discovering which human dimension is relative. In the process of thinking and sketching a scale drawing was created, other dimensions have been revealed without conscious thought. Merely thinking about how tall will produce a couple of dimensions; this sketch illustrates at least ten.





Above are two pages from a sketch book used as an appointment/day book. There are many advantages to keeping important information in your sketch book. There are more reasons to have the book with you; pictures are visual cues to prompt memory; you only need one book. Also, using a sketch book as your primary record keeping book makes others more comfortable with sketched information. People who don't speak the same language can communicate easier with a sketch book. The construction drawings below were produced by two people; talking, thinking and drawing at the same time on the same page.



Grant Law sketches music on napkins while he's selling coffee. Although music notation is a sophisticated written language, it is based on the analog drawing.

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A first-rate mail-order source for drawing and other fine-arts supplies.

My favorite heavyweight paper is Arches 88, a versatile handmade paper with deckle edges. It comes in two sheet sizes (22" x 30" and 30" x 42") as well as in rolls. You can tear it into business-card-size pieces so you always have a scrap of paper to draw on.

They also carry solid graphite pencils and Derment Graphic wooden pencils.

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BE ADVENTURESOME WITH PAPER...YOU MIGHT JUST BE SUPRISED WITH THE RESULTS!

own little kitchen. Don't be intimidated by paper.

The second reason why you should look through all those drawers is because someday you might not be able to find a sketch book that feels right. Someday you might need a sketch book to fit a certain space, but one to fit is not available. Or one does fit, but its paper doesn't feel right with your favorite fountain pen, so you never draw with either. But if you're familiar with the paper in the flat drawers you can have a print shop make a few books to your specifications. If you are the type that likes custom made sandals and personalized stationery you'll love having 100 lb. litho paper put up to fit in your check case. Print shops can also cut a book down to size if you like something but it's too big. The people at the art store can help you find an understanding printer. Printers and art store people are used to creative types wanting custom made books. Historically, it's been one of their mainstays. They are your friends. You can also do a lot for yourself at photo copy stores; many of them have multiple punches, paper cutters and binding tools. If you're really isolated, or shy, you can make just about any kind of sketch book you want at home with a paper punch, razor knife and ruler.

The important thing about choosing a sketch book is to remove as many physical and emotional road blocks to sketching as you can. There is no reason why you shouldn't have custom hardware that's compatible with the custom sketching and writing software in your head.

Don't worry about accumulating different sizes of sketches in different books, they're all just information and their location can be recorded for retrieval with a card file or with a portable computer that fits in your waterproof sketch case. It is important to keep your sketches and to review them as you would written notes.

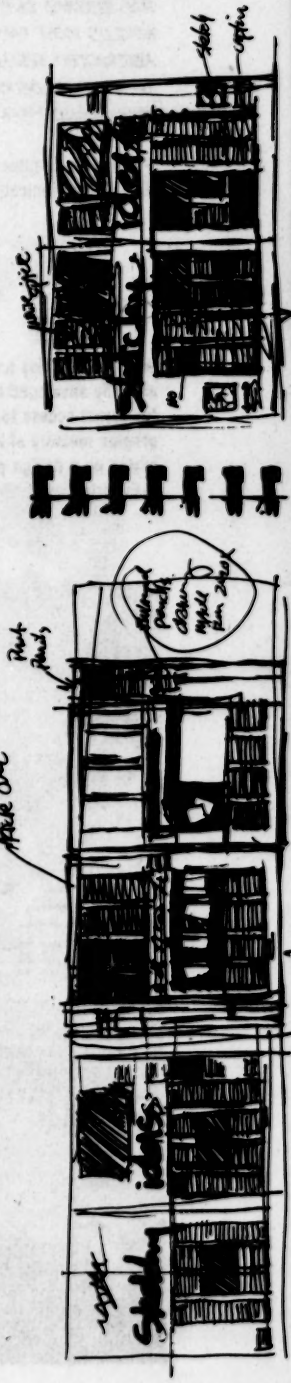
It's possible that we have yet to learn all the uses of intuitive sketching. Many people claim that while doodling, a solution to another problem will come to them. Does the act of drawing prompt a mental state conducive to reasoning? Shouldn't we nurture phenomena like this?

Aside from the obvious uses of sketching to communicate everyday ideas with more clarity, sketching seems to direct our thoughts toward ideas that we haven't expressed. Sketching seems to show us the building blocks to concepts not yet formulated.

To gain the immediate communicative value of sketching we need to sketch more and assert sketching as viable information. To discover and achieve the maximum communicative value of intuitive sketching, we need to trust our wits. ■

Typesetting By Carol Smith on a Macintosh Plus Computer.

This article was written in a sketch book. After the initial paragraphs and outline, the author began sketching the article. Sketches led to paragraphs, the outline became the paste-up grid. Tracing paper was used over the first sketches to edit copy. Desktop publishing is not a new idea. Some of civilizations' most informational and good looking pages were created entirely by hand and are still easily reproduced for mass consumption by modern printing.



VISUAL

CBS BY W. GOLDEN, N.Y. ABSTRACT EYE, PROMOTED VERY HEAVILY SINCE ABOUT 1951. EXTREMELY HIGH RECOGNITION BECAUSE OF EXPOSURE FREQUENCY. ONE OF BEST KNOWN MARKS IN U.S.

WOOLMARK BY FRANCESCO SAROGLIA, ITALY. SINCE 1964 HAS BECOME ONE OF THE WORLD'S MOST FAMILIAR SYMBOLS. ABSTRACTED SKEIN OF YARN, SPACE FLOW, OPTICAL STRENGTH. "WOOL-BLEND" MARK ITS CHILD.

—Notes on Graphic Design and Visual Communication

ISN'T IT STRANGE THAT conscious visual communication is not a common language outside advertising agencies and art schools? Eyeballs, after all, are precisely where minds meet the world. Western civilization in the late twentieth century, by virtue of our electronic mass media, is the most visually saturated society in history. We are bombarded every second with imagery from billboards, magazines, newspapers, television sets — even graffiti — all flowing through our nervous systems unhindered by conscious awareness, like so many neutrinos zipping silently through the planet. Despite this incessant storm of visual symbols, very few of us in this high-viz culture consider ourselves capable of expressing ourselves visually, or of using images to communicate. We go to professionals for that.

Nobody ever calls it by name, but we are a visually illiterate culture. Everybody knows how to talk, most people know how to write a sentence, many seem to believe they could write a book, but the almost universal prejudice is that only artists and illustrators are capable of communicating visually. All that seems to be changing. And those who latch onto the new visual communication media early on are going to be glad they did.

Those old prejudices have been jogged out of their tracks by several recent discoveries. One was the discovery of the influence of visual thinking on our reasoning processes: experiments by perceptual psychologists revealed that our perceptions, particularly our visual perceptions, structure the way we think about the world. And the use of visual imagery for communicating abstractions, the way artists and designers do, seems to involve a specific mode of thought, a certain set of mental skills. Recently, a few specialists have dared to suggest that just about anybody can learn visual thinking skills, just as we learn to type or write a letter. It's all a matter of knowing the right exercises and having the right tools. Advocates of visual thinking exercises claim it can improve the way you think.

Rudolf Arnheim's classic **Visual Thinking** used examples from art and psychology to demonstrate that we derive our ideas and language itself from our perceptual responses. Then new knowledge about the mind's use of visual thinking emerged from the work with interhemispheric differences in the brain — the "right-brain/left-brain" dichotomy we've heard too much about. Despite the hype and hoopla about "right-brained" this and that, it does appear to be true that all of us use several different modes of thinking in our daily tasks, depending on what task we are tackling, and which part of the task we are involved in.

The dominant mode of thought in our society is "linear" thinking, involving words, logic, sequences, and numbers. The other mode of thought involves imagery, nonsequential thought, intuition. The vast majority of the population depends on the linear mode most of the time. But during those moments when we are thinking in pictures instead of words, looking for subtle patterns rather than generating logical arguments, or are being particularly creative or intuitive, we switch into the other mode. Artists appear to be able to dip into the visual mode at will.

When educators and psychologists began to look into the possibility of training non-experts, they made a startling discovery that was popularized by Betty Edwards in her books **Drawing on the Right Side of the Brain** and **Drawing on the Artist Within** (**EWEC** p. 322): not only can non-artists learn visual thinking skills, but the act of using a pencil or a pen to sketch, doodle, or visualize an idea is a tool for switching the brain into the "other" mode of thought — the non-linear, imagistic, intuitive, "creative" mode. If you have a problem, you can use a pencil and paper to doodle in a structured manner while you are thinking about your problem. By unlocking your other mode of thought at the same time you are concentrating on your problem, you may come up with solutions you would not have thought about otherwise. Simply stated, conscious doodling can put you in a more flexible, creative state of mind.

Arnheim's book is chock full of analysis and examples, and is ponderous reading. Betty Edwards'

William Katavolos and his students are fully enveloped in, and have full visual access to, a collective graphic memory of ideas generated on a design problem.
—Experiences in Visual Thinking

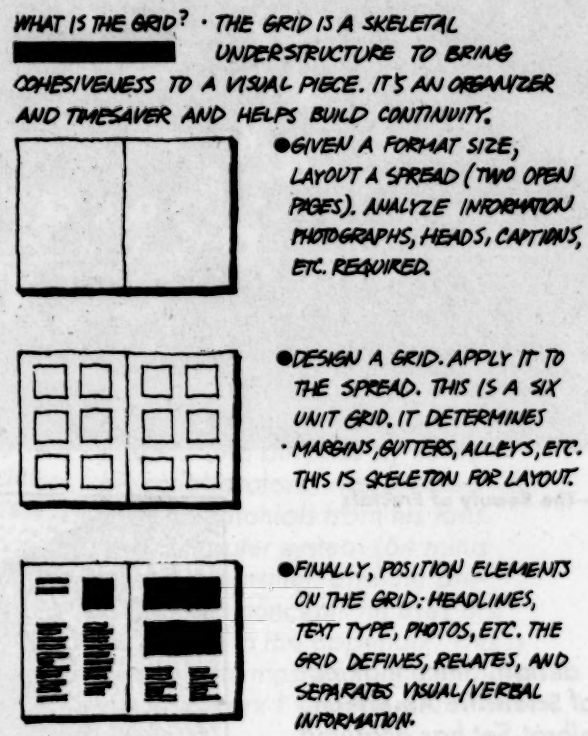
THINKING

BY HOWARD RHEINGOLD

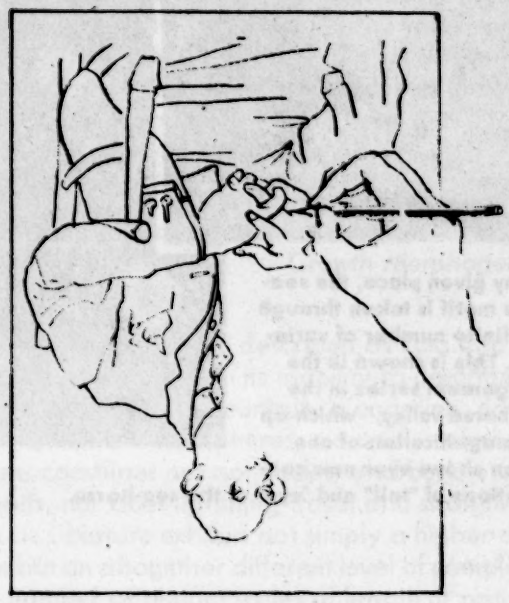
books are both based on exercises, are filled with quotes and examples, and are fun to read even if you don't follow the exercises. My mother, a lifelong art teacher (now a children's docent at San Francisco's Museum of Modern Art: Hi Mom!) heartily endorses **Drawing With Children: A Creative Teaching and Learning Method That Works for Adults, Too**. She's been reading it and playing with my three-year-old daughter Mamie, and they are both having a high old time. It isn't one of those books on how to turn your infant into a genius. Just a lot of fun with a system for helping you notice things. The before-and-after drawings in black and white and color do a great job of showing the reader exactly what the book is talking about: after as little as an hour of exercises taken from the book, children as young as four create compositions of astonishing sophistication.

It's happening in colleges as well as nursery schools. Recently, a team of designers, psychologists, computer scientists, and engineers has been teaching a course in visual thinking. "Viz-Think," as the Stanford course is called, has become increasingly popular. **Experiences in Visual Thinking** by Robert McKim, one of the teachers, is a book of exercises organized into a complete curriculum for learning visual thinking strategies and techniques.

While visual thinking is a process of using images to generate and communicate ideas, graphic design is a discipline by which visual thinking techniques are applied to specific communication tasks. Visual literacy is at the tactical level. Graphic design is strategic. Once again, we've left this to the specialists, who have come up with all kinds of handy tricks for influencing opinion and conveying information through visual imagery. Anyone can use them. You don't need a license: all you have to do is know about them. Gregg Berryman's short introductory book, **Notes on Graphic Design and Visual Communication**, shows as well as tells the key tricks of the trades: stuff like how and why to make thumbnail sketches, the fundamentals of typography, the use of marks, symbols, logos, and pictograms, the elements of page design. The words describing these techniques are surrounded by illustrations that get the points across graphically.



—Notes on Graphic Design and Visual Communications



Inverted drawing. Forcing the cognitive shift from the dominant left-hemisphere mode to the subdominant right-hemisphere mode.

—Drawing on the Right Side of the Brain

It's great to know that we can all learn to think visually, and this is important if you want to find novel solutions or create something new, but does that mean millions of people are going to rush out and learn how to think visually? In the sense that Betty Edwards' books are selling hundreds of thousands of copies, there is a growing population of "visual literates" out there. This curriculum for learning new ways to think and express ourselves might signal an important shift in the way people will think about many things. Especially when you consider the enormous amplification of these effects that is now possible through the creative use of personal computers.

With the advent of computers like the Macintosh, where the user can use software tools to create and control images on the screen, computer users can think visually with more sophistication. Just as word processors and spreadsheets make it possible for people to write and analyze numerical information at a higher level because the computer takes care of lower-level tasks like moving paragraphs and recalculating equations, computer paint programs make it possible for people to think and communicate more easily with images. The user can now incorporate graphs, maps, diagrams, flow-charts, and other visual devices in written documents.

The evolution of visual thinking tools continues to accelerate, with no end in sight. With a Macintosh user base in the millions, and millions more IBM-compatible computers converting to graphics-based interfaces like Windows, the personal computer world is more and more becoming a world where people aren't afraid to use graphs, charts, and even drawings to communicate their thoughts and feelings. Look for more visual expression and visual thinking in documents and even casual communications like memos in the coming months and years. ■

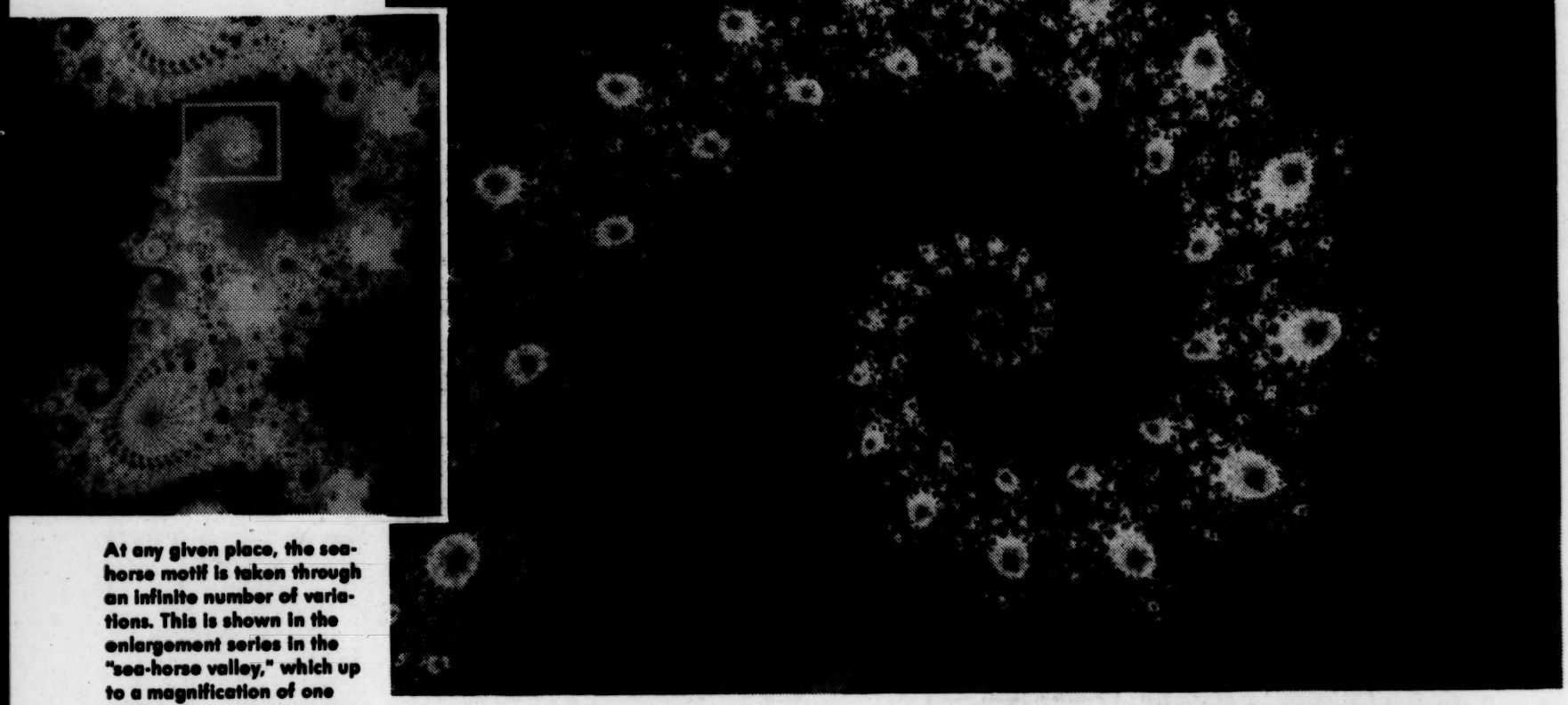
From the author's computer sketchbook. Left and right brains are reunited at last.

Visual Thinking: Rudolf Arnheim, 1969; 345 pp. **$12.95** ($14.45 postpaid) from University of California Press/Order Dept., 2120 Berkeley Way, Berkeley, CA 94720.

Drawing With Children: Mona Brookes, 1986; 211 pp. **$10.95** ($12.20 postpaid) from St. Martin's Press, 175 5th Avenue, New York, NY 10010.

Notes on Graphic Design and Visual Communication: Gregg Berryman, 1984; 48 pp. **$4.95** ($6.45 postpaid) from William Kaufmann, Inc., 95 1st Street, Los Altos, CA 94022.

Experiences in Visual Thinking: Robert H. McKim, 1980; 183 pp. **$23** ($25 postpaid) from Wadsworth Inc., 7625 Empire Drive, Florence, KY 41042.



At any given place, the sea-horse motif is taken through an infinite number of variations. This is shown in the enlargement series in the "sea-horse valley," which up to a magnification of one million shows ever new constellations of "tail" and "eye" of the sea-horse.

—The Beauty of Fractals

FRACTALS & SUCH

BY ROBERT HORVITZ

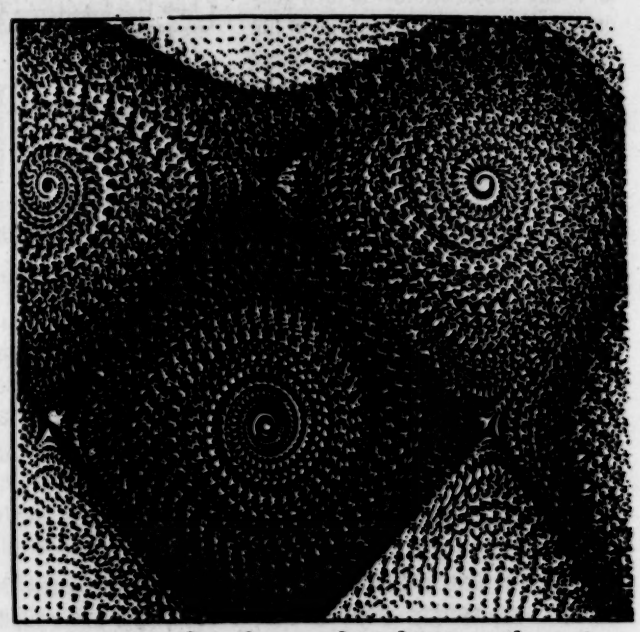
THE AUGUST 1985 ***Scientific American*** *had a gorgeous, mysterious picture on its cover: a black disk rimmed with smaller disks, surrounded by Kirlian halos of multicolored flame. A. K. Dewdney explained, in that issue's "Computer Recreations" column, that the image represented part of the edge of the Mandelbrot Set, one of the most complex mathematical forms ever devised. His article was illuminated with close-ups of other regions on the edge of the M-Set. Deliriously detailed, all were generated on a computer by repeating a simple calculation on a field of real and imaginary numbers. When this is done many times, the plane around the Mandelbrot Set erupts in convoluted symmetries and fluid-crystal swirls, as the algorithm drives points outside the set to infinity. This explosive turbulence can be made visible by assigning colors to the speed at which each coordinate "flees." The resulting image is mathematically rigorous yet shamelessly psychedelic — wilder but more highly ordered than any manmade design. Since making the cover of* ***Scientific American****, the Mandelbrot Set has acquired something of a cult following, as people explore the minute worlds-within-worlds at its margin.*

The M-Set is a particularly spectacular example of a "fractal" — that is, a form with edges that are unsmooth at any magnification. (Perhaps not surprisingly, the set's discoverer, Benoit Mandelbrot, was the primary developer of fractal geometry.) Fractals are not just an eye-tickling family of irregular shapes; they are a new tool for analyzing and modeling natural phenomena that have eluded description in more traditional terms. In addition, the technique used to generate the M-Set, "iterative mapping," has applications in the simulation of "chaotic" processes that have only begun to be tapped.

The beauty, versatility and descriptive power of fractals and iterative mapping have inspired a new kind of graphic research flourishing between art and science. Here are a few gateways into this field:

The Beauty of Fractals

Some seventy dazzling color pictures, and many more in black and white, make this a seductive introduction for those not mathematically inclined. At the same time, it's packed with enough advanced mathematics to keep a grad student



$$ij = -ji = k \quad jk = -kj \quad ki = -ik = j$$

—The Journal of Chaos and Graphics

Self-terminating hereditary information takes a completely autonomous shape as the spiral covering the outer skin — the ascending and descending spiral completely covers the outer skin with a firm husk. That is, furthermore, like the properties of a highly acid creature.

—Growth Morphogenesis

busy for years. Capping it off, there are thoughtful essays on the impact of fractals on the way we view nature, science and art, as well as a personal account of the discovery of the M-Set and a review of the evolution of fractal geometry by Mandelbrot himself.

The Journal of Chaos and Graphics

A new occasional journal covering all sorts of mathematically based visual wildness, edited by one of the leading researchers. Brief, inspiring reports with barely adequate black-and-white graphics. The seed of future glory.

Amygdala

Newsletter for people interested in the Mandelbrot Set. Short articles (including some "math-fi," a new fiction genre related to sci-fi); reviews of fractal-generating software and algorithmic shortcuts; and a running bibliography of important fractal publications. Two kinds of subscriptions are offered: you get either 10 issues of the newsletter, or 25 color slides of the M-Set released over the same time period. Or you can get both the slides and the newsletter.

By the way, "Amygdala" is Latin for "almond;" "Mandelbrot" is Yiddish for "almond bread;" and "amygdaloid" is an igneous rock with rounded cavities filled with mineral crystals.

Art Matrix

The leading vendor of high-resolution M-Set color graphics — videos, slides, photoprints, and postcards. You gotta love a company whose motto is "A Fractal in Every Paw." Also produces work on commission, and develops and sells software.

Growth Morphogenesis

Yoichiro Kawaguchi's work makes use of fractals, but he's not just a finder of fruitful equations, he's a brilliant inventor of visual worlds. Colorfully patterned biomorphs, resembling sea creatures from another planet, grow, writhe, float and evolve in his video animations, while the surroundings, the observer's viewpoint and the light source all move. The dynamism of these forms is partly captured in sequences of stills in this amply illustrated book, with texts in Japanese and English. Some of the chapters seem to be transcribed lectures by Kawaguchi; the hallucinogenic flavor of his thinking is somewhat heightened by the difficulty of translation.

Other chapters are descriptions of method and purpose by some of his collaborators, interspersed with short testimonials from his fans. The computer system (64 minis linked in parallel) and the programming concepts he uses are described in the appendix. This is some of the most exciting computer-graphic work I've ever seen.

•

The original character which is dispatched and harmonized — the cell-like trait, which grows while sent out in liquid-state from a husk closed within a kernel, self-materializes a definitely hereditary character within a movement combining a semiorganic ionized colloid personality with the arbitrariness of the living body.

—Growth Morphogenesis

•

Topological paradise — a resonance with intricacy and confrontation between influence and assertion fuse, so that an emotional perspective appears. This is the emergence of a world of words polished through living body rhythms and the weaving of brocade. This is probably reflected screen in the human mental world. It forms a celestial image surpassing the pain of existence bespoken by colors and common sayings.

This may well be the most sublime image that computer graphics can achieve now.

—Growth Morphogenesis

•

Why is geometry often described as cold and dry? One reason lies in its inability to describe the shape of a cloud, a mountain, a coastline, or a tree. Clouds are not spheres, mountains are not cones, coastlines are not circles, and bark is not smooth, nor does lightning travel in a straight line. . . . Nature exhibits not simply a higher degree but an altogether different level of complexity. The number of distinct scales of length of patterns is for all purposes infinite.

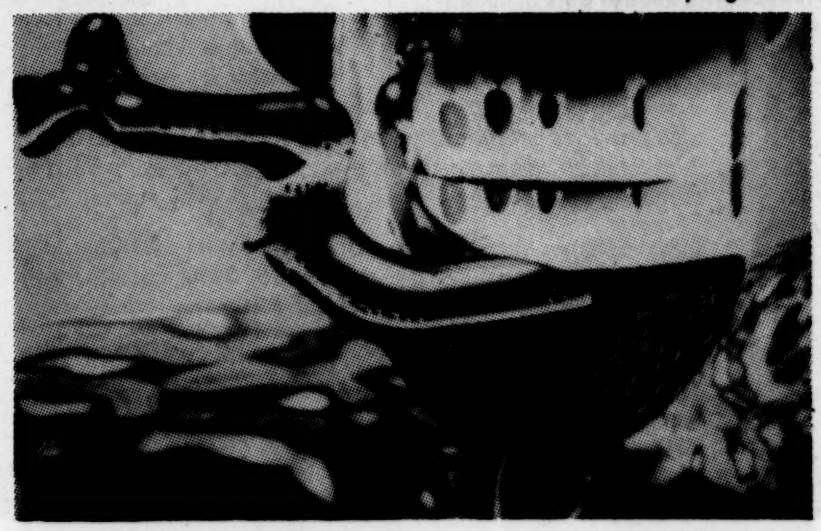
The existence of these patterns challenges us to study those forms that Euclid leaves aside as being formless, to investigate the morphology of the amorphous. Mathematicians have disdained this challenge, however, and have increasingly chosen to flee from nature by devising theories unrelated to anything we can see or feel.

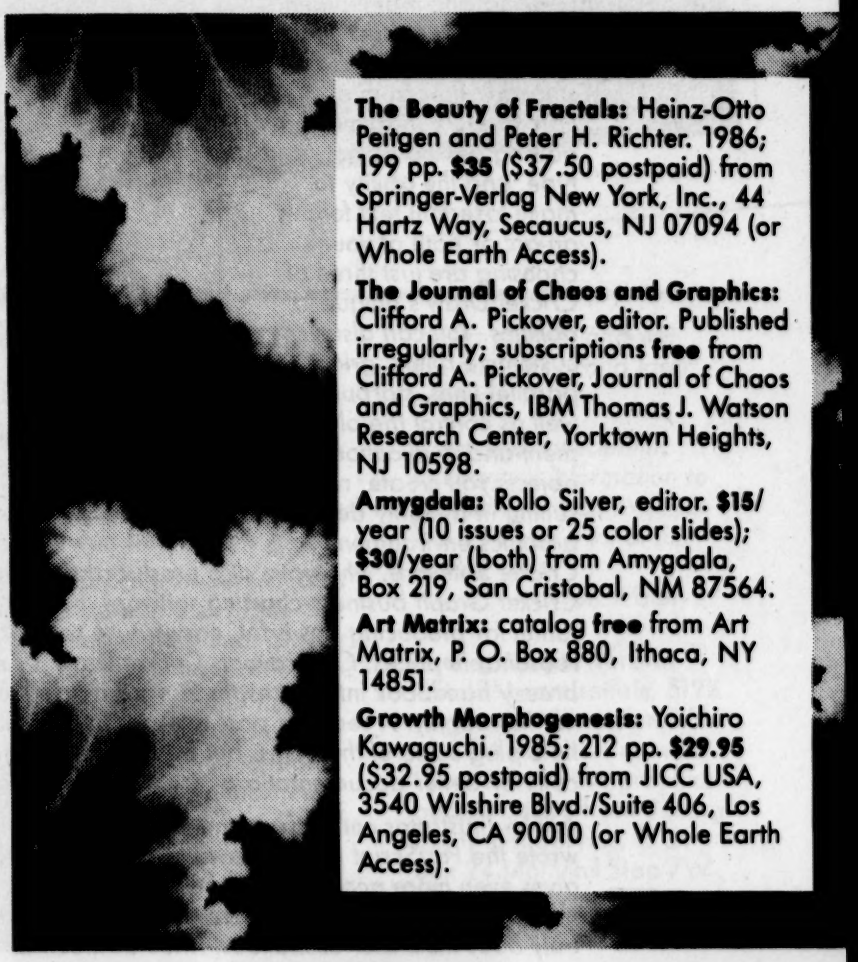
—Benoit Mandelbrot,
The Beauty of Fractals ■

(Right) Fractal image B3BAAAB/21. —*Art Matrix*

(Below) The mimesis in the level of transparency — the mimesis which has melted invisibly within the light, seems to be an art of seclusion within the bounds of human visibility. The living body is purified, and its transparency is gauged at the point at which it can no longer hold impurities inside the body cavity even by using all its might.

—*Growth Morphogenesis*





The Beauty of Fractals: Heinz-Otto Peitgen and Peter H. Richter. 1986; 199 pp. **$35** ($37.50 postpaid) from Springer-Verlag New York, Inc., 44 Hartz Way, Secaucus, NJ 07094 (or Whole Earth Access).

The Journal of Chaos and Graphics: Clifford A. Pickover, editor. Published irregularly; subscriptions **free** from Clifford A. Pickover, Journal of Chaos and Graphics, IBM Thomas J. Watson Research Center, Yorktown Heights, NJ 10598.

Amygdala: Rollo Silver, editor. **$15**/year (10 issues or 25 color slides); **$30**/year (both) from Amygdala, Box 219, San Cristobal, NM 87564.

Art Matrix: catalog **free** from Art Matrix, P. O. Box 880, Ithaca, NY 14851.

Growth Morphogenesis: Yoichiro Kawaguchi. 1985; 212 pp. **$29.95** ($32.95 postpaid) from JICC USA, 3540 Wilshire Blvd./Suite 406, Los Angeles, CA 90010 (or Whole Earth Access).

Cricket Draw
• Adobe Illustrator

Three and a half years since its introduction, the Macintosh is still the easiest-to-use (and in some configurations, most powerful) personal computer around. Graphic artists are especially fond of the Mac and the LaserWriter, Apple's high-resolution printer. Both Adobe Illustrator and Cricket Draw provide the tools for producing professional graphics using the PostScript language that is built into the LaserWriter and an increasing number of other printers. This has made them an immediate favorite of daily newspaper art departments and graphic design studios.

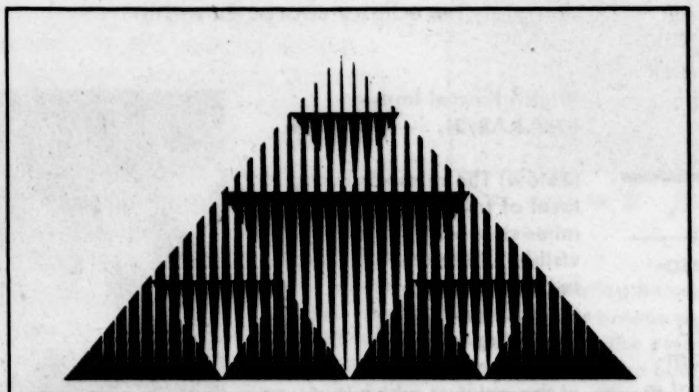
Cricket Draw is the most immediately accessible of the two programs. On the surface it resembles Apple's MacDraw, but underneath, Cricket Draw adds a whole new range of powers for creating and manipulating images. Grey-scale "fountains" (shaded areas that smoothly flow from dark to light grey), controlled shadowing behind objects and type, and the ability to make laserfont text follow an arc or path of your choosing are just three of Cricket Draw's unique abilities. You can also customize rulers, grids, parallel lines, starbursts, as well as control the placement and duplication of objects you create, resulting in a highly defined graphics environment.

Cricket Software, who have also produced the popular Cricket Graph business-charting software, have a reputation for producing powerful, easy-to-use software at reasonable prices. One caveat: Cricket Draw's rather breezy handbook introduces the program adequately but not thoroughly. A series of post-release "technical notes" help plug some of the holes, but a program this good calls for better documentation.

Adobe Illustrator comes from the same company that wrote the PostScript language itself. Not surprisingly, it gives even more access to high-resolution image manipulation. However, this access comes at a price: not only does Illustrator cost almost twice as much as Cricket Draw but it has a user interface that is twice as complex. With Illustrator you usually start with a scanned paint-image (such as a digitized drawing or photo from Thunderscan or MacVision) which serves as a template. This is then traced on-screen with Illustrator's tools, most often the "pen" which enables you to connect a series of bezier curves and straight lines. Illustrator also gives you extensive control over laser fonts, including stretching, angling, and grey-screens. Some of Cricket Draw's snappy tricks such as fountains and text arcs are not easily duplicated in Illustrator, although PostScript provides the means to achieve them. On the other hand, once you get the hang of its interface, Illustrator lets you produce the most nuanced art of any graphics program for the Mac.

If you are a professional artist with a Macintosh, Illustrator is worth serious consideration. Cricket Draw also provides graphics power, but because of its ease of use its potential audience includes everyone with access to a LaserWriter.

—Jay Kinney

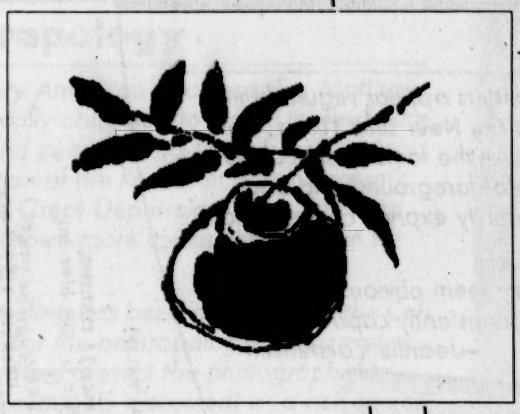


Cricket Draw's "Transfer Mode" lets you take shaded areas and transform them with lines or dots in dimensions of your choice.

Once an image has been drawn in Illustrator it can be stretched, flopped, and altered in many other ways. Laser type can also be modified with great precision.

Adobe Illustrator lets you trace from a digitized image in one window while watching a "preview" window showing how your drawing will look when printed.

Cricket Draw: Version 1.01; not copy-protected. Macintosh 512E required. LaserWriter suggested. **$295** from Cricket Software, Inc., 3508 Market Street #206, Philadelphia, PA 19104; 800/345-8112 (in California: 800/662-2444).
Adobe Illustrator: Version 1.1; copy-protected (registered users get non-copy-protected disk). Macintosh Plus and external drive recommended. LaserWriter suggested. **$495** from Adobe Systems, Inc., 1855 Charleston Road/ P. O. Box 7900, Mountain View, CA 94039-7900; 415/961-4400.



This sketch shows the dexterity of line in MacCalligraphy 2.0. Although it has a heavy Oriental influence, the expressiveness of the "ink" works equally well for Western images.

"With the digital photographic process and my computer, I journey to places that have never been and never can be except in my imagination. Places that existed in mankind's past are raw material for me. They bring up the feelings of lost knowlege and forgotten wisdom."

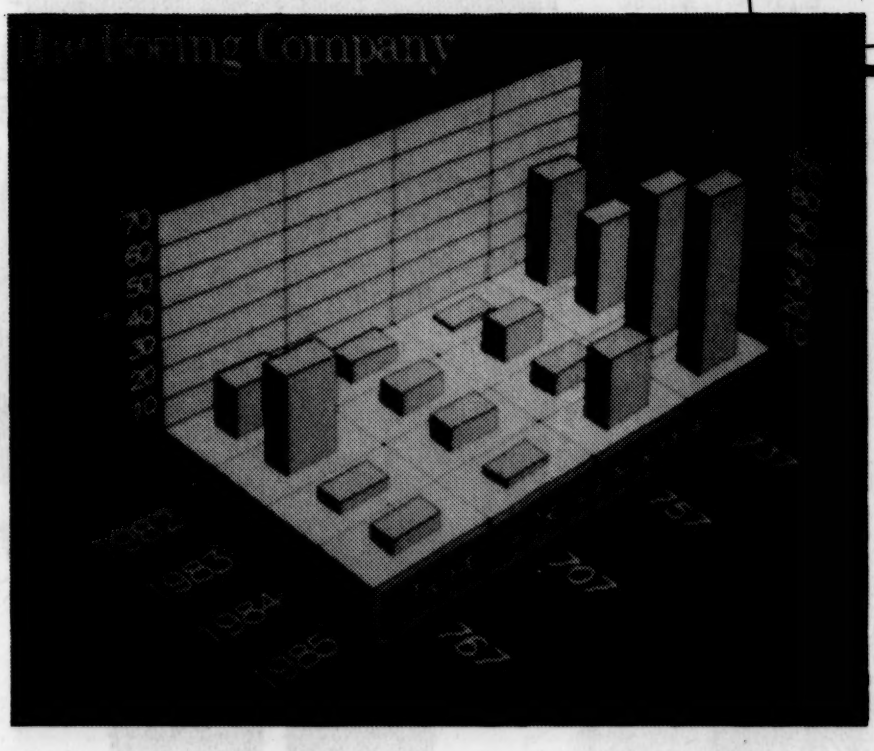
"[With these techniques] I was able to do things that I could not in the silver print process. In silver photography one does not have control of the individual grains of silver that make up the image..."

VERBUM

Remember the sort of graphics you fantasized would be possible when you first heard of personal computers? They can finally be done. Artists are grabbing the cursor and spawning a distinct design sense, which this classy journal explores. "It looks like computer art" is the first thing you are cured of.

—Kevin Kelly

VERBUM
Michael Gosney, Editor
$28/year
(4 issues) from:
Verbum Subscriptions
P. O. Box 15439
San Diego, CA 92115
619/463-9977



Boeing Graph

Numbers stun; pictures illuminate. If you have ever tried to present numerical information visually, you know how difficult it can be.

This program turns tables of data into exquisite three-dimensional graphs. You can choose among 32 different types of three-dimensional graphs, 15 types of two-dimensional graphs, and almost endless points of view. Graphs can be rotated, moved vertically and horizontally, repainted, and labeled as you choose. The program drives plotters and will use dot-matrix and laser printers.

If you present scientific or financial information to people, this is an exquisite tool. It's also a lot of fun to play with.

—Birrell Walsh

Boeing Graph: Version 4.0; IBM compatible, 512K required. Will run on B/W or CGA monitors or with Hercules or EGA graphics adaptor. **$395** from Boeing Computer Service, P. O. Box 24346/Mail Stop 7W-05, Seattle, WA 98124-0346; 800/368-4555.

Suterisms

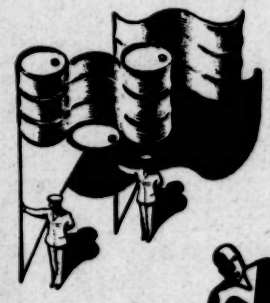
David Suter's visual mind-benders appear regularly in national publications such as ***The New York Times, Harper's,*** *and* ***The Progressive****. Like the famous optical illusionist M.C. Escher, Suter melds foreground and background in drawings that inherently express contradictions in our political unconscious.*

His images are so natural they seem obvious. Their simplicity and elegance are consistently captivating.
—Jeanne Carstensen

Captured (1983)

Suterisms
David Suter
1986; 97 pp.
$4.95
($5.95 postpaid) from:
Ballantine/Random House
400 Hahn Road
Westminster, MD 21157
800/638-6460
or Whole Earth Access

The Job (1980)



. . . And Sworn to Defend . . . (1979)

Selectovision (1985)

The Anatomy of the Image Maps

Bonnie Gordon has investigated a single halftone photograph of an unknown man (found in a junk store in Santa Monica), and a single book (Merriam-Webster's ***Third New International Dictionary of the English Language Unabridged****), for a decade, stretching their structures and contents to reveal unexpected connections between language and the human body. All the marks, lines, dots and words in her work are taken from the photo and the dictionary, via an elastic gelatin photoemulsion. Her work is summarized in this classy paperback. —Robert Horvitz*

The Anatomy of the Image Maps
Bonnie Gordon
1982; 48 pp.
$12 postpaid from:
Gordon
797 Potomac Ave.
Buffalo, NY 14209

Visual Anthropology

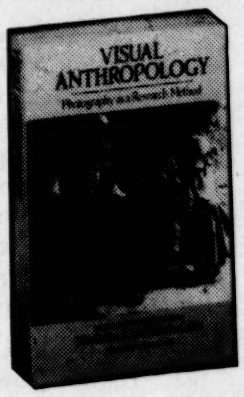
The great 19th-century American photographer Matthew Brady felt he was morally obligated to record for the future the events, places, and people of his time. Since Brady's time, with the exception of the Roosevelt administration's documentation of the Great Depression, the public face of photography has shown more consistent attention to aesthetic achievement.

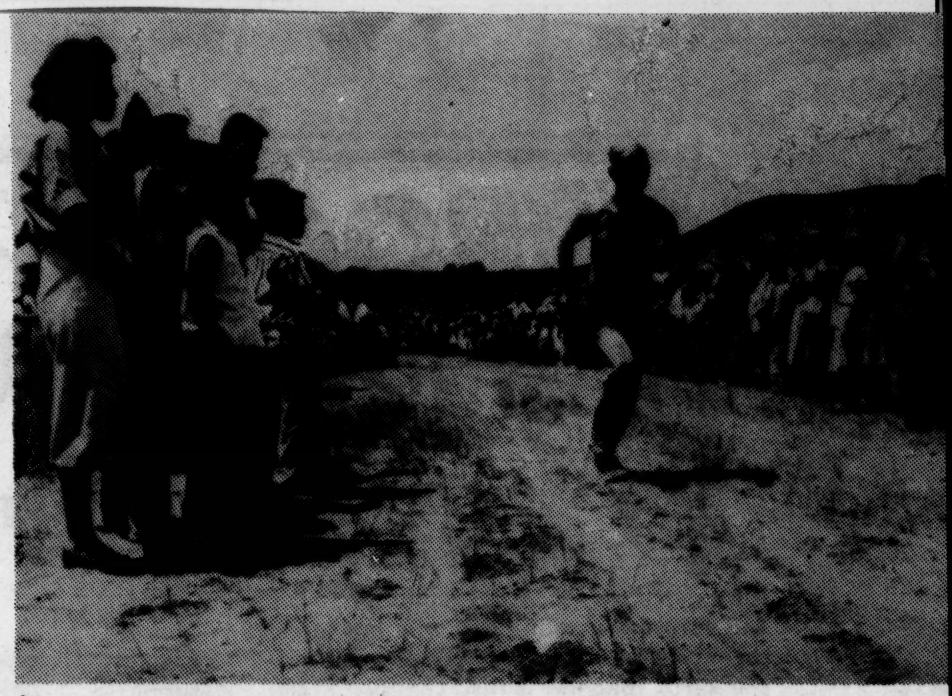
Brady's plea for recording has been answered by the Colliers, who show how. For the anthropologist, geographer, or sociologist, the authors present the photograph (film and video are also thoroughly discussed) as a rich source of both qualitative and quantitative information about human behavior and culture.

As a photographer, I was struck by the methodology of "interviewing with photographs," in which photographs are cycled back to their subjects, who are asked to interpret and expand on what is going on in the picture.

Surely broadening for the photographer as well as a valuable tool for the social scientist. —*Don Ryan*

Visual Anthropology
(Photography as a Research Method)
John Collier, Jr. and Malcolm Collier
1986; 248 pp.
$14.95
($15.95 postpaid) from:
University of New Mexico Press
Albuquerque, NM 87131
505/277-4810





▲ The research period included the major saints day for the village during which a number of ceremonial activities took place, including an exquisite deer dance. At the request of the village governor both the deer dance and some foot races, involving mainly older men down by the river, were photographed. The field team considered themselves exceptionally lucky to be invited to photograph the deer dance, often considered to be the central ceremonial activity of this summer fiesta.

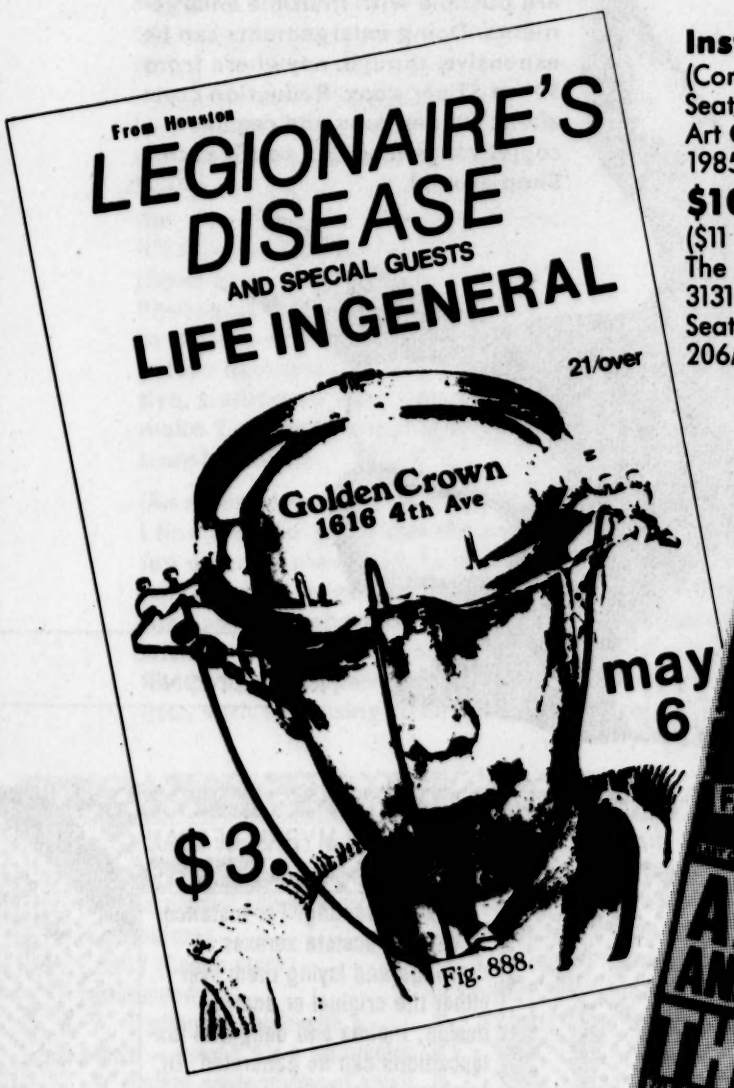
When Siegel carried out interviews using the photographs, to our amazement, only cursory comments were made on the deer dance; "We just do that for the Spanish people. . . ." But when the photographs showed the crowd moving down the hill to the foot race the interview tone changed; "Now the solemn time begins. . . ." and intense commentary followed. Running was more of a central ceremonial mystique than the elaborate deer dance. This revelation suggested changes in classical beliefs regarding ceremonialism at both Picuris and its larger neighbor, Taos Pueblo. Both had excelled, historically, in long-distance running, but it was the drama and pageantry of the deer dance that had always captivated the attention of outside observers in the past.

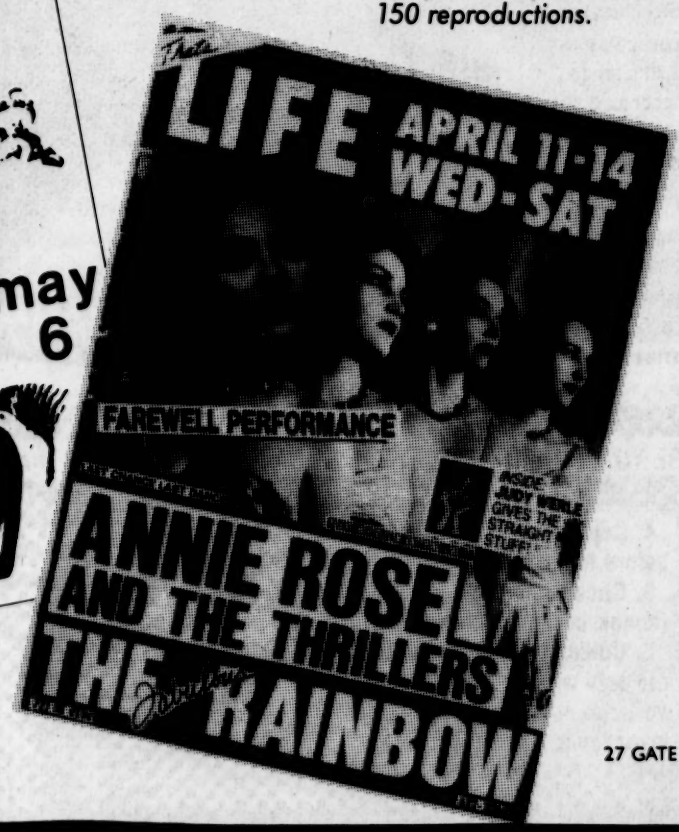
Instant Litter

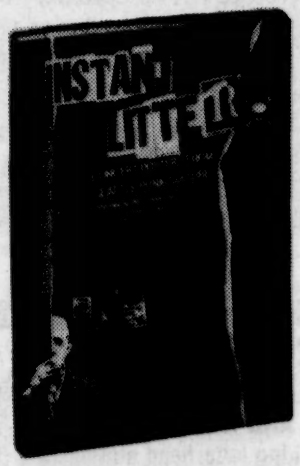
The ultimate disposable art: xerox posters for garage bands, stapled to telephone poles. Art Chantry of Seattle was so struck by a phenomenon he calls "more a community primal scream than advertising" that he began to collect and research the posters of the Seattle punk music scene.

The result, ***Instant Litter****, is strange and wonderful and disturbing, filled with the manipulation of innocent middle-class images to display the frank and explosive energy of middle-class fugitives. Whenever possible the posters are deciphered by source and the history of the band; over 150 reproductions.* —*Sallie Tisdale*

Instant Litter
(Concert Posters from Seattle Punk Culture)
Art Chantry
1985; 112 pp.
$10
($11 postpaid) from:
The Real Comet Press
3131 Western Ave. #410
Seattle, WA 98121
206/283-7827







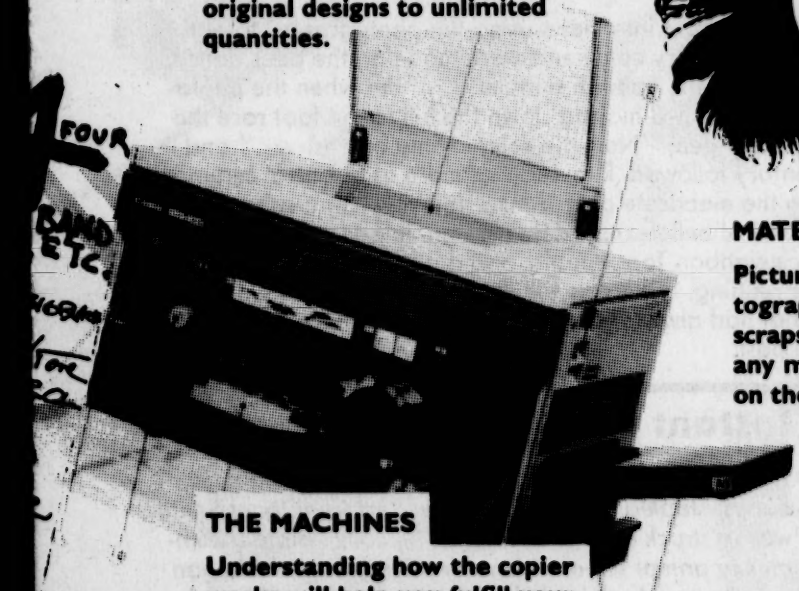
XEROGRAPHY BY TOM PATRICK

Performance, xerox, and mail artist Tom Patrick — he says "posturban artist" — has taught xerox art at U.C. Berkeley. —Jeanne Carstensen

XEROX ART

It's a quick way of visual thinking, and your inspiration need only last seconds. As a reproductive tool, the xerox machine is fast, cheap, and versatile, making freedom of expression possible instantaneously. It's creativity at the push of a button.

You can make posters, books, magazines, postcards, to name just a few possibilities, and multiply your original designs to unlimited quantities.

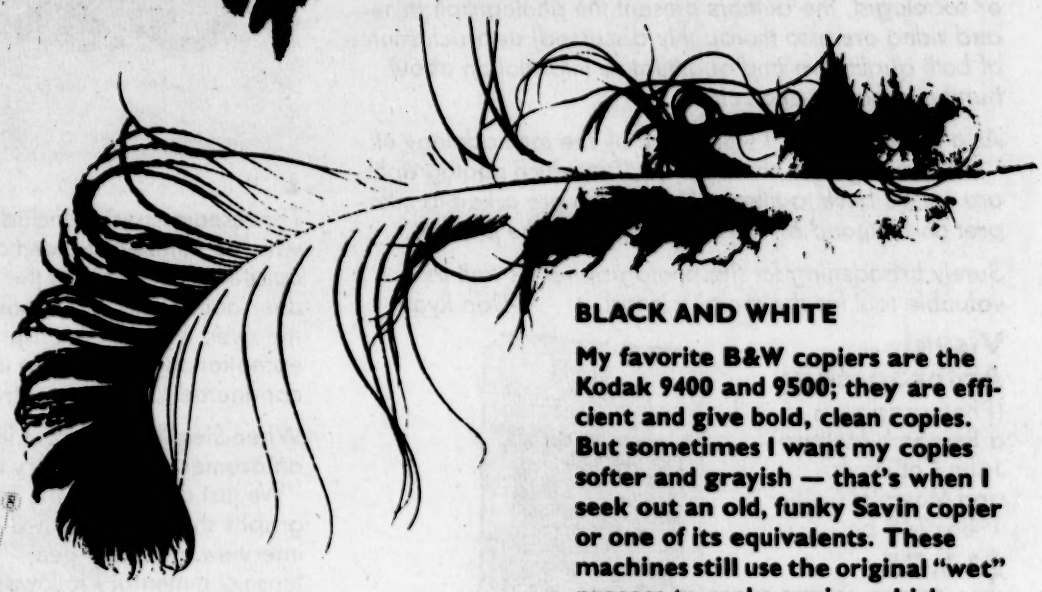


THE MACHINES

Understanding how the copier works will help you fulfill your creative act. The copy machine has two basic parts: the camera and the printer.

The camera is basically a lens and a light source. It takes an "electronic" picture of the object being copied and sends that information to the printer. The printer uses an electrostatically charged drum (a large metal cylinder) to attract the fine black powder of the dry toner which is then rolled onto paper and heat-fused.

The toner is a kind of plastic that works well on paper, acetate and transfer sheets. You can also "transfer" copy imagery using a solvent, or even some brands of markers.



MATERIALS

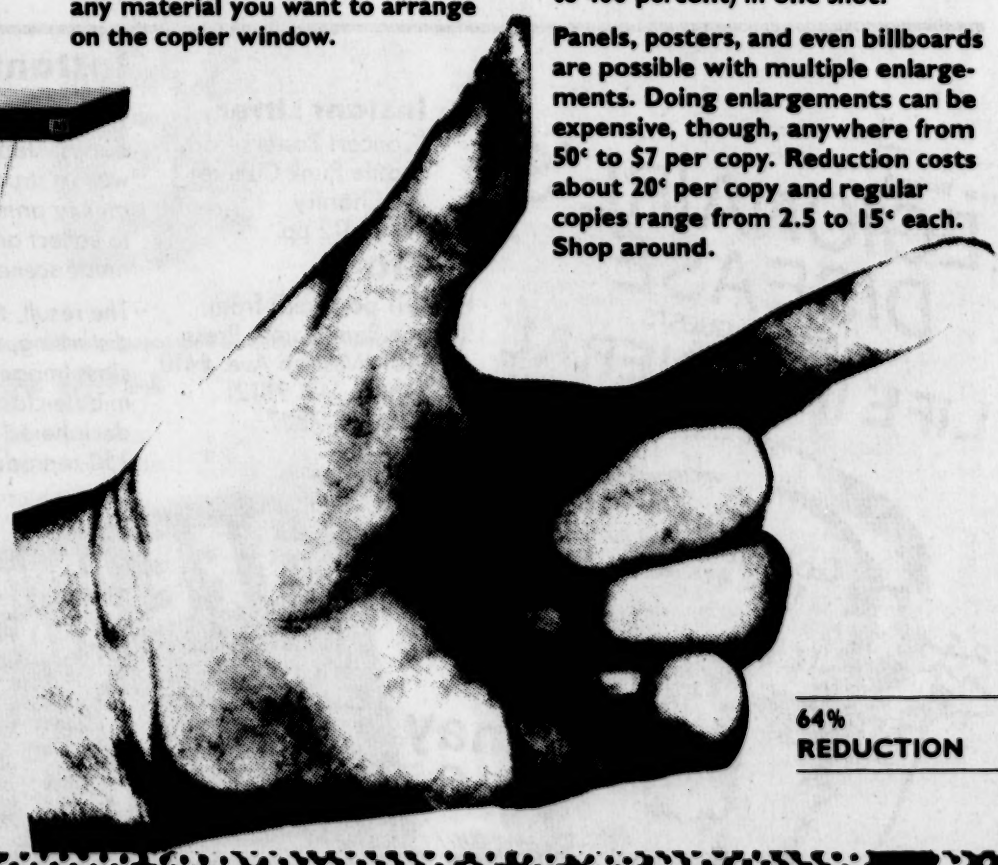
Pictures from magazines, photographs, cloth, feathers, paper scraps, found objects, your elbow; any material you want to arrange on the copier window.

BLACK AND WHITE

My favorite B&W copiers are the Kodak 9400 and 9500; they are efficient and give bold, clean copies. But sometimes I want my copies softer and grayish — that's when I seek out an old, funky Savin copier or one of its equivalents. These machines still use the original "wet" process to make copies, which produces the softer look.

Many black & white copiers let you reduce (down to about 40 percent of the original size) or enlarge (up to 400 percent) in one shot.

Panels, posters, and even billboards are possible with multiple enlargements. Doing enlargements can be expensive, though, anywhere from 50¢ to $7 per copy. Reduction costs about 20¢ per copy and regular copies range from 2.5 to 15¢ each. Shop around.



64%
REDUCTION

XEROGRAPHY, WHAT ARE YOU GOOD FOR? LET ME COUNT THE WAYS

BY GERTRUDE MYRRH REAGAN

BLACK AND WHITE

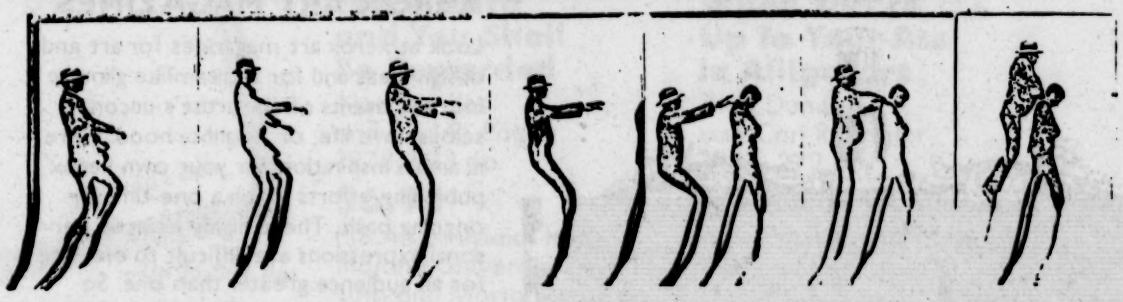
1. Making letterhead stationery in exactly the quantities needed.
2. Copying careworn phone lists onto strong paper.
3. Moving and editing text without a computer (cut and paste!).
4. Copying my kid's best drawing before he mails it away.
5. Cheaply enlarging or reducing (Kodak copier recommended).
6. Culling images I need for art projects without having to tear up large numbers of books and magazines.
7. Experimenting! For instance, by making acetate xeroxes of drawings and laying them over either the original or another design, moires and delightful juxtapositions can be generated. Or, combine several sizes of the same image.

SOME TECHNIQUES

After you arrange your materials on the copier glass, experiment with different ways of reproducing what's lying on the glass.

CHOICE OF COPIER — As mentioned above, some copiers produce crisp, bold images while others come out soft and grey. Know your machines.

ONE-OF-A-KIND COPIES — Unpredictable "actions" and events may leave you with an original, the image that only you have a copy of. "Mistakes" often lead to new techniques and discoveries about the machine.



COPY MOTION — Moving the image on the screen while the camera is working. Older machines with a slow-scanning light bar work particularly well, humorously elongating the image. Also works with color machines since they use the same scanning light bar technology.

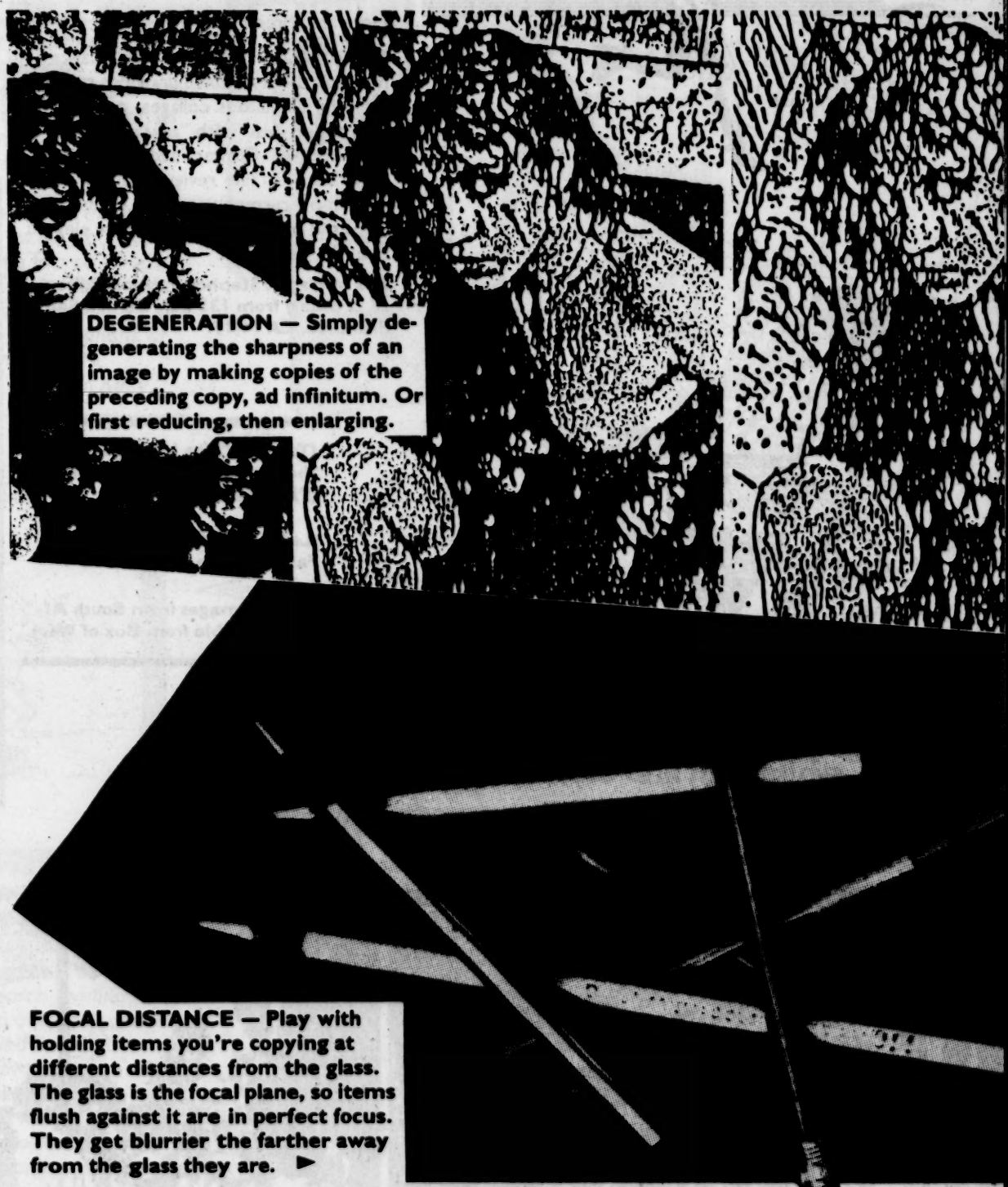
COLOR

Each of the color copiers available today — Xerox, Canon, Minolta, and Sharp — has its own unique qualities. The Xerox is more hard-edged, more print-like, whereas the Canon and Minolta copiers are more photo-like and softer.

The color copier uses three color toners — magenta, yellow and cyan — to simulate full-color reproduction. Or you can choose two colors to work with, or just one, depending on what you want to do. Think of the possibilities of overlaying colors or separating colors — completely changing around the colors within one picture.

The imaging gets even more interesting when you find out all the materials that you can copy on. Besides several types of paper, you can use transparencies and transfer sheets. By copying on transparencies you can make your own slides. It's also possible to get copies on paper from photographic slides. Photographers use this technique to cheaply see a print of a slide before having it printed the expensive, traditional way. You can also make T-shirts by copying onto transfer sheets.

(As an experimental copy artist I find transfer processes the most fun on color machines. I use transfers to make larger prints on nice rag paper and combine this method with other traditional art media like paint, spraypaint, pencils, etc., with surprising results.)



DEGENERATION — Simply degenerating the sharpness of an image by making copies of the preceding copy, ad infinitum. Or first reducing, then enlarging.

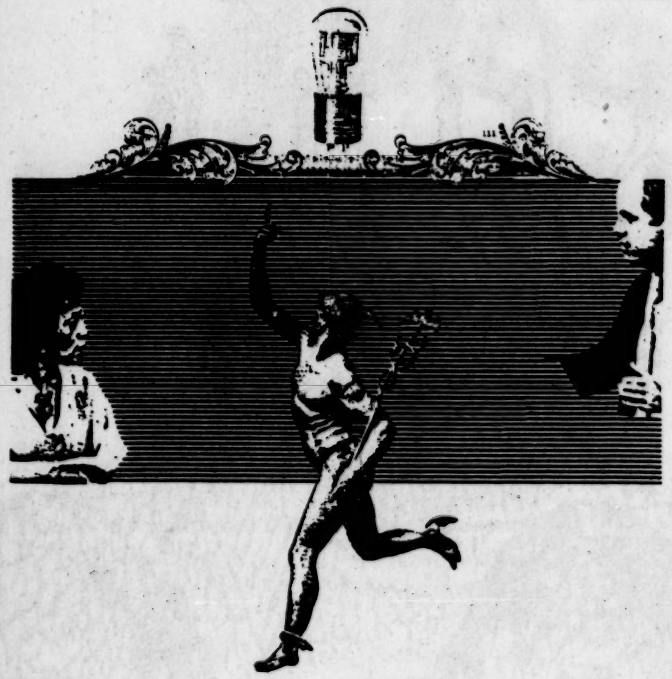
FOCAL DISTANCE — Play with holding items you're copying at different distances from the glass. The glass is the focal plane, so items flush against it are in perfect focus. They get blurrier the farther away from the glass they are. ►

A Thermofax copier (at many schools) with special coated cloth can make small silk screens of these xeroxes.

COLOR (Canon copier recommended)

8. Sharing a sketch with a friend — even if it's a watercolor.
9. Instant photography of small treasures.
10. Outrageous art! like collage, yet it allows 3-D objects and manipulations while the machine slowly scans each color.
11. Copying old color photos before they fade.
12. Giving each of my children a copy of the childhood photo album. Expensive, but invaluable.

All this, without the computer user's up-front capital expense.



"Sylvia Plath introduced me to white rum and arsenic."

XEROX ART MAGAZINES

Look at xerox art magazines for art and design ideas and for a dreamlike glimpse into the events of the artist's unconscious, love life, or neighborhood. Here is ample inspiration for your own xerox publishing efforts — on a one-time or ongoing basis. These highly eclectic personal expressions are difficult to evaluate for an audience greater than one. So when reading through the reviews in **Fact Sheet Five** (p. 46), **Sound Choice** (p. 111), or other magazines, take note of what sounds fun and order away. Experimentation is the rule here, for readers and publishers alike.

Here are three I like.

Box of Water: Distinct, bold images, many of them xeroxed drawings rather than the ubiquitous collages, on heavy grey paper. Also with "textual experimentations." Contact addresses for all contributors, 'zine reviews, and information on current xerox art compilations and mail art catalogs. More elegant than the usual fare.

Box of Water: Stephen Perkins, Editor. $5 (2 issues) from 135 Cole Street, San Francisco, CA 94117.

False Positive: Editor Donna Kossy uses a high-quality copier and takes full advantage of it with good paper and superb color-xerox covers. This mix of Kossy's collages and "black humor, offbeat ideologies, and anomalous art" is actually coherent, unlike many other 'zines that might be described the same way. *Oh* she's sarcastic. I love it.

False Positive: Donna Kossy, Editor. $10 (4 issues) from Out-of-Control Data Korporation, P. O. Box 432, Boston, MA 02258.

PhotoStatic Magazine: A collection of xerox art broadsides of every possible style with short notes about the artists. Vaguely related by theme.

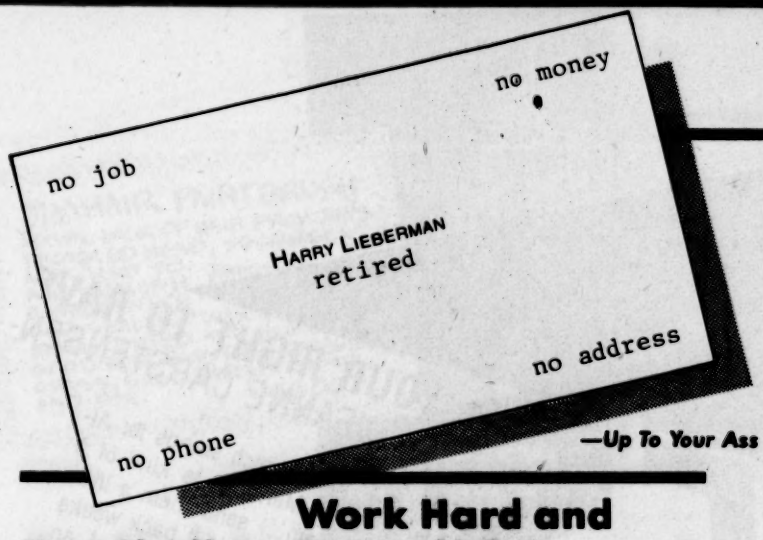
PhotoStatic Magazine: Lloyd Dunn, Editor. $6/year (6 issues) from 330 South Linn Street, Iowa City, IA 52240.

—Jeanne Carstensen

(Top left) "The Message and the Messenger" by Lil Dunn (PhotoStatic Magazine).

(Left and right) Images from False Positive.

(Below) Images from South Africa (available from Box of War).



—*Up To Your Ass*

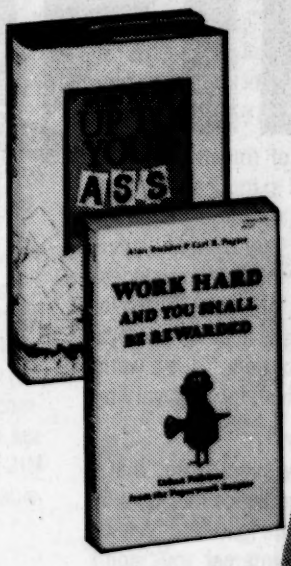
Work Hard and You Shall Be Rewarded • When You're Up To Your Ass in Alligators

Every office I have ever been in has at least one corner plastered with cartoons, doggerel, and folk art made possible by the xerox machine. Taped on walls and bulletin boards, circulated by friends, these half-serious postings are galleries for a national communications channel that touches nearly everyone. Like all folklore, they are unexamined messages from the culture's subconscious. The material which gets passed around the most is often racist, pornographic, or anti-bureaucratic — socially acceptable ways of confronting the tabooed and the feared. These two collections, accurately subtitled "Urban Folklore from the Paperwork Empire," relay the quiet shift from an oral folklore to an inked folklore, driven by the inventions of typewriters, copy machines, and instant printers.

—Kevin Kelly

Work Hard and You Shall Be Rewarded
Alan Dundes
and Carl R. Pagter
1978; 223 pp.
$6.95
($8.45 postpaid) from:
Indiana University Press
10th and Morton Streets
Bloomington, IN 47405
812/335-5429
or Whole Earth Access

When You're Up To Your Ass in Alligators
Alan Dundes
and Carl R. Pagter
1987; 272 pp.
$9.95
($11.95 postpaid) from:
Wayne State
University Press
Detroit, MI 48202
313/577-4603
or Whole Earth Access



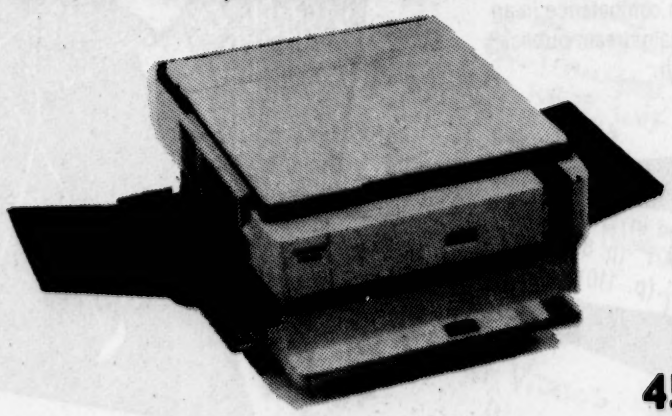
—*Work Hard*

Canon PC-20 Personal Copier

I've come to believe that a personal copier is as important as a personal computer for doing research, writing, almost any intellectual activity. Having one vastly accelerated a book project for me — I copied notes from my notebooks and quotes from books and taped them onto 5 x 8 cards, and those cards became the handy coin of the book's realm. I share information more now, because it's so easy to knock out a copy for someone, and I file stuff more reliably in multiple versions. A copier is even invaluable around the home — copy the recipe from a bulky cookbook, copy the portion of the map you're driving on today, make a copy of Auntie's postcard or Junior's theme for Mom.

The great thing about the small copiers that have much of their high-tech in disposable cartridges is that they so seldom break down or even need fiddling with. In over a year of intense use I've had zero problems with my Canon. Limitation for artists and jokers: because the platen moves, it's hard to make copies of your body parts. The machine doesn't enlarge or reduce or collate or work at high speed, but who cares? I can cart it around (with a little puffing), and its feed tray eliminates hand-feeding of paper. Not a cheap appliance, but its value is enormous, way more than I expected. —*Stewart Brand*

Canon PC-20: Suggested retail $1,095; actually available for far less (Whole Earth Access sells them for $699). Check local Canon dealers and discount office-supply outfits. Cartridges containing toner in assorted colors, drum, and developer are about $80.



ZINES

YOUR RIGHT TO RAVE
BY JEANNE CARSTENSEN

DEEP DOWN, I THINK WE ALL BElieve we're the smartest hunks of flesh to ever walk the planet.

Admit it. You know the real truth and want to publish it. You are destined to write, edit, design, draw, and cartoon your ideas into the psyche of this raging nation (this nation's raging psyche?). If only you had access to the presses . . .

So start your own magazine. Engage the best writers and artists (you and your friends) and distribute it to the most influential opinion leaders (you and your friends). Exercise your right to rave. After all, that's what professional writers do. They just get paid for it. You can do it too.

"'Zines" are wildly partisan small magazines of the fanatic, or devoted, depending on your view of the subject matter. They're unabashedly noncommercial — true labors of love — and don't seem to conform to any standard of quality except their own. 'Zines rave about special interests: hobbies like play-by-mail games, science fiction, "fringe" political groups, punk bands, comics, mail and xerox art, underground cassette music distribution, or that most special of special interests — the writing and art of one editor/writer/artist/designer.

Sometimes the raving is obnoxious, petty, or mediocre. Self-importance and incompetence can come together with unfortunate results in a 'zine with no criticism to monitor it. The art can be bad, the writing worse. But at least it's the raving of people who are dedicated to their concerns. It could also be called "passion." And sometimes passion joins with competence in an unusual way no mainstream publication would publish.

The thousands of (mostly xeroxed) 'zines published in this country constitute a raucous wave of underground exploratory publishing: highly personal and idiosyncratic expressions, visual and/or written, distributed for free or very cheaply to small but loyal groups of "subscribers." It's a world of staggering diversity and varying quality.

'Zines are highly specialized, that's the point; their audience may be only 25 people. So if the following reviews don't happen to interest you, don't give up. There are thousands of 'zines out there on every topic imaginable. I just happen to like the art-oriented 'zines; they bring nonlinear relief to my work as an editor. Subscribe to FACTSHEET FIVE (below) and order 'zines in your particular area of interest. Or, of course, start your own.

AFM

Probably my favorite, though it can hardly be considered a 'zine. There is no front or back cover, and no pages in between. A postcard will get you an envelope of some kind of art; each mailing is unique.

My first AFM was an envelope full of lacy paper art, color cardboard shapes, and collages. There's nothing like receiving an AFM package, because it's not every day that you receive a colorful pile of whimsical pieces of art. My latest AFM package drew even more attention than usual around the office. It was a large box plastered with stamps and decorations. Inside was an original drawing which I now have on my wall: sort of eighties psychedelic.

For me, AFM (which stands for Aterial Facial Mandala) is kind of a shared dream. I send them a little drawing. AFM sends it back weeks later pasted on the outside of an envelope. "It got lonely," they tell me. I have never been to Florida or met the AFMers, but we share drawings and bits of color back and forth just for fun. AFM explains themselves like this: "This package contains the residue of a process known as AFM. We do not wish to profit from this; rather we are recycling our personal resources to communicate our found freedom."

Part of the AFM process is exchange. You have to participate and that's the price.

AFM: Send SASE to 18 NW 100th Street, Miami, FL 33150.

Triangles from AFM

ART POLICE

I was immediately attracted to the cover: a pen-and-ink drawing of a robot french-kissing a skeleton. If that doesn't intrigue you, you might hate ART POLICE comic books.

Inside are more drawings of a slightly depraved nature — lots of sex and war and clashing of humans and technology. But they're recognizable nightmares, kind of post-industrial Blake.

ART POLICE: $15/year (3 issues) from Art Police, 3131 1st Avenue S., Minneapolis, MN 55408.

Other 'zines are reviewed in "Xerography" (p. 42), "Mail Art" (p. 84), and "Cassette Culture" (p. 110).

FACTSHEET FIVE

Mike Gunderloy's alternative/underground 'zine review is the best single source of 'zine information. Mike somehow manages to write hundreds of short, helpful, funny reviews each issue on 'zines of confounding variety. He calls FACTSHEET FIVE "the 'zine of crosscurrents and cross-pollination." One 30-minute browse of the anarchistic, evangelical, xerox- and mail-art, bioregional, libertarian, animal-rights, and music 'zine reviews (to name only a few kinds) spreads around a lot of strange pollen. Don't miss this 'zine of 'zines.

FACTSHEET FIVE: Mike Gunderloy, editor. **$8**/year (4 issues) from Factsheet Five, 6 Arizona Avenue, Rensselaer, NY 12144.

JIM

Jim Woodring is a surrealist artist and writer who puts out his own magazine. I liked his drawings so much I asked him to illustrate an article for this issue of WER (see "Memes," p. 50). Strange juxtapositions of animals and objects in eerie environments skillfully illustrate the poetry in Jim's head. My own dreams seem boring in comparison.

Fantagraphics Books, publishers of LOVE AND ROCKETS and many other quality comics, have just started publishing JIM. I would still recommend contacting Jim directly to see what back issues of the xeroxed JIM and other booklets he has available.

JIM: by Jim Woodring; **$2.75** each (postpaid) from Fantagraphics Books, Inc., 4359 Cornell Road, Agoura, CA 91301. For information on self-published JIMs, send SASE to Jim Woodring, P. O. Box 10075, Glendale, CA 91209.

* THE BAG #19 (SASE from Buddah Worthmore, 1223 Washington, Kalamazoo, MI 49001): Nonsensical ramblings from someone who has burned himself out by thinking too much about too little. THE BAG is made up of short short stories and thoughts that often end up with nasty twists or non sequitirs. There's a lot of energy here, but it's directed towards running in circles and going bdeah-bdeah-bdeah rather than to making a point.

*****

*****

DECENTRALIZE! #4 ($1 from Carol Moore, Box 106, 632 Cloverdale, Los Angeles, CA 90036): Carol is pushing for a future of decentralization, with no giant nation-states controlling us, and wants strategies to be both radical (i.e. operating through civil disobedience & secession rather than elections) and non-violent. She hopes this vision will be strong enough to link "libertarians, anarchists, minarchists, bioregionalists, greens, georgists, radical feminists, voluntaryists" and more together. A lot of people are feeding back into her ideas, and most of them seem pretty excited.

*****

THE DUPLEX PLANET #84 ($1.25 from PO Box 1230, Saratoga Springs, NY 12866): This is Dave Greenberger's zine of recorded conversations. He doesn't talk to just anyone, though; only to senior citizens. In a small way, he's collecting the wisdom of the ages. Each issue has a special focus. #84 is loosely centered around memories of the Sixties.

*****

VOID #1 ($1 (?) from Rosaria Canale, 20338 Keswick St., Canoga Park, CA 91306): A punk and skate zine from my old hauhts -- in fact a live gig in my hometown gets reviewed in this issue. Rosaria talks to Group of Individuals, Negative Reaction, and Naturecore and reviews both live and recorded music. But the core of this zine is the beautiful photography of people flying through the air on a board with wheels underneath. A high-quality first effort.

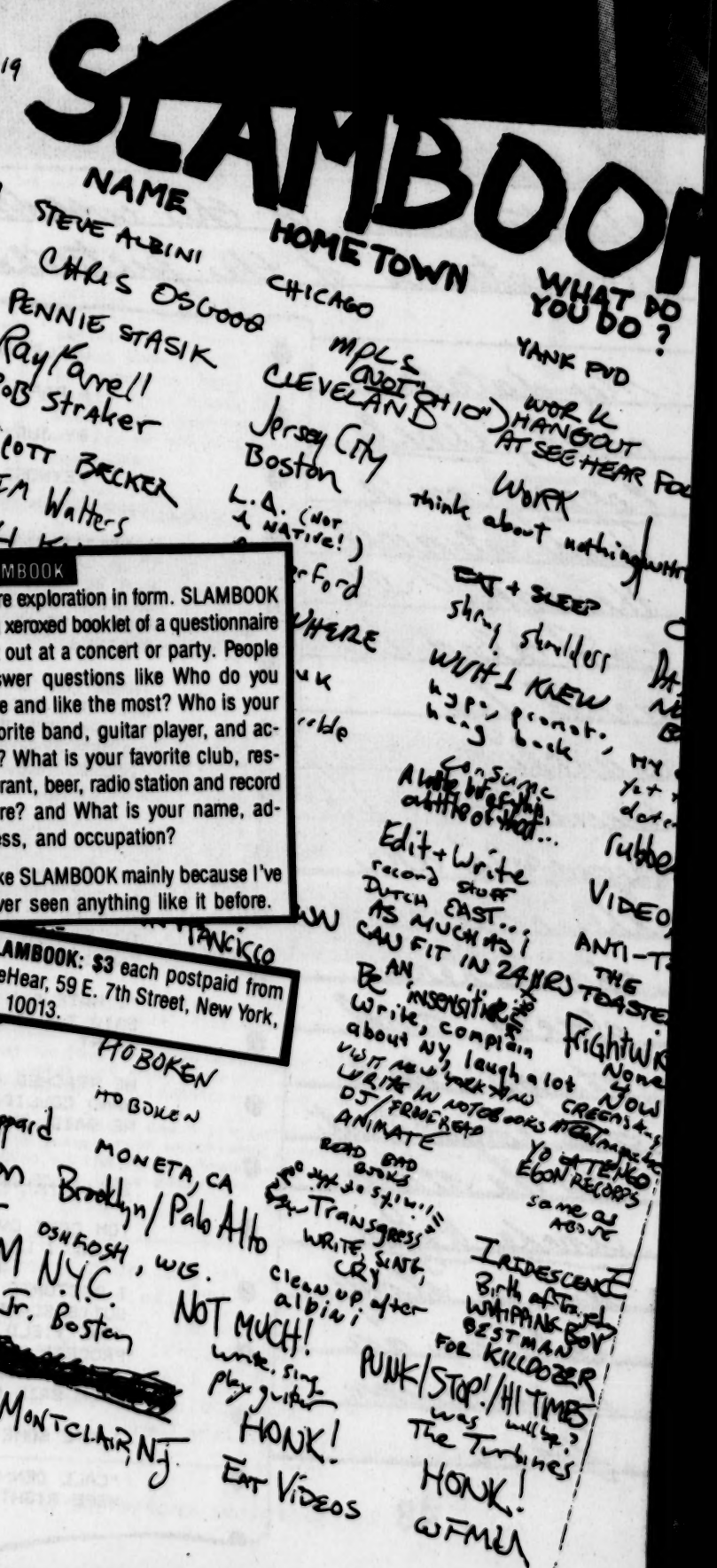
*****

SLAMBOOK

More exploration in form. SLAMBOOK is a xeroxed booklet of a questionnaire put out at a concert or party. People answer questions like Who do you hate and like the most? Who is your favorite band, guitar player, and actor? What is your favorite club, restaurant, beer, radio station and record store? and What is your name, address, and occupation?

I like SLAMBOOK mainly because I've never seen anything like it before.

SLAMBOOK: $3 each postpaid from SeeHear, 59 E. 7th Street, New York, NY 10013.



Information Forms → Stories

Judy Malloy

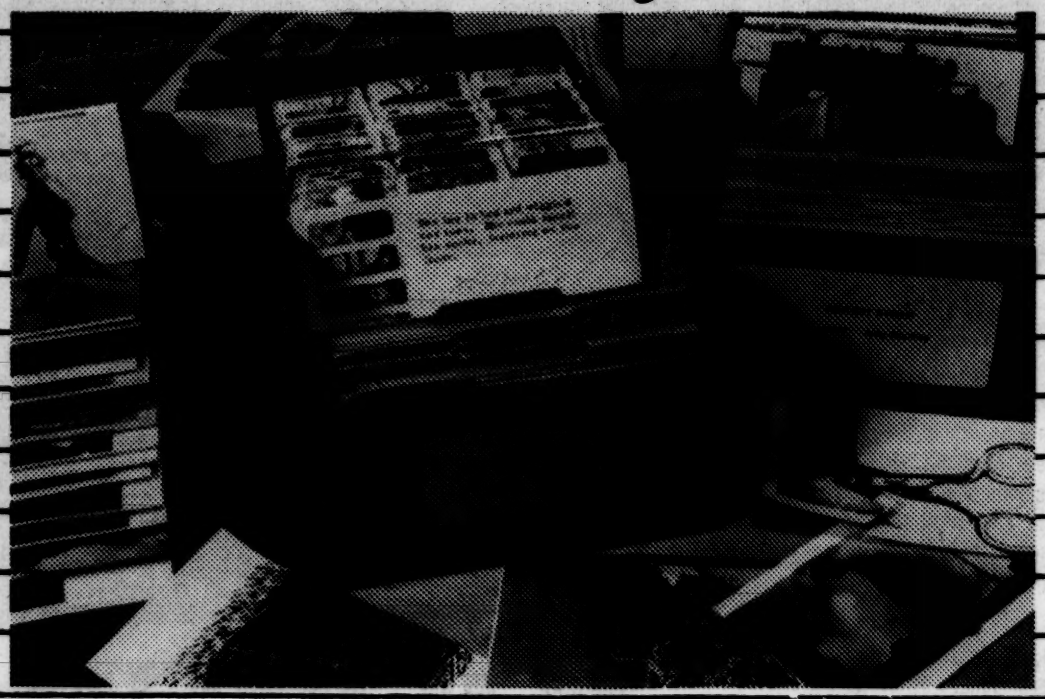


photo: Bruce Henderson

In my card file works, I use drawings, photos and writing - on 3"x5" cards - to tell stories. The stories can be read straight through, or randomly. Some are indexed with pictures. Some are indexed with lines of text. I try to use words and pictures so that neither are the pictures illustrations of the words, nor are the words descriptions of the pictures.

My database novel, Uncle Roger, can be read straight through. It can also be read by searching keywords. The keywords are the names of characters, places, and things that are important to the story. Uncle Roger is a story told in an information form.

UNCLE ROGER - FILE 1

A PARTY IN WOODSIDE

BY JUDY MALLOY

KEYWORD SEARCHED: MEN IN TAN SUITS

++

ON A LARGE GLASS TABLE WERE WHITE PLATES FULL OF WARM MUSHROOM SANDWICHES. ON THAT SAME TABLE WERE BOTTLES OF RED AND WHITE WINE AND STACKS OF PLASTIC GLASSES.

THREE MEN IN TAN SUITS WERE STANDING OVER THE TABLE, EATING MUSHROOM SANDWICHES AND TALKING. I POURED MYSELF A GLASS OF RED WINE. "250 GIGAHEARTS," SAID ONE OF THE MEN. AT LEAST THAT'S WHAT I THOUGHT HE SAID.

++

I WENT TO THE GLASS TABLE AND FILLED UP MY PLASTIC GLASS WITH RED WINE. THE MEN IN THE TAN SUITS WERE STILL TALKING.

"I HATE ALL THAT TOGETHERNESS SHIT," SAID THE ONE WITH THE PINK STRIPED SHIRT.

HE REACHED FOR A MUSHROOM SANDWICH. HIS HAND COLLIDED WITH MY HAND. "HI THERE," HE SAID, "I'M JAKE."

++

TOM CAME OVER. "THE YIELD IS DOWN. I THINK I LOST THE PROCESS," SAID JACK.

I PICTURED A WHOLE LINE OF MEN IN TAN SUITS SCAMPERING AROUND A STAGE SINGING, "THE YIELD IS DOWN. I THINK WE LOST THE PROCESS." THE CHORUS WAS "WE LOST IT IN THE SUBMICRON AREA," WHICH IS WHAT JACK SAID NEXT.

I ATE SOME CHEESEBALLS.

"CALL DENNIS AND TELL HIM TO GET OUT HERE RIGHT AWAY," SAID TOM.

Uncle Roger was told sequentially on Art Com Electronic Network (ACEN), on the WELL. Everytime I logged on, I added a new "record." Now, it can be searched by keywords on ACEN Datasets, and I'm working on a version for Apple Computers.

Information as an Artist's Material

In my information art, I gather information and distill it into art. Instead of making pictures of gods as presidents, I portray our technological society - using information from its own literature, as iconography.

OK GENETIC ENGINEERING

As President of OK Genetic Engineering, 1983-1985, I collected information about genetic engineering research and development. I used that information to make a series of reports and products - small reproducible combinations of words and images which were distributed as free handouts at art events and through the mail art network.

"If you are young, " J.D. Watson said, "there is really no option but to be a molecular biologist." (Nature 305:383-384, 1983) Wearing a name tag that said "OK GENETIC ENGINEERING - J.P. MALLOY, PRESIDENT", I went to a trade show where genetic engineering equipment was displayed. I was deluged by salesmen wanting to know where my facility was.

I drove a company car. The company car was a 1973 Chrysler station wagon with "OK GENETIC ENGINEERING - QUALITY CLONES SINCE 1984" painted on its side panels. Typical reactions were: "Can they rally do that?"; "What's that stuff you do that begins with a 'c'?"; "Do you have any jobs?"

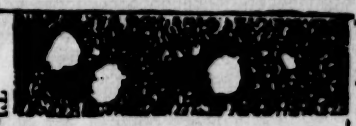
I wrote a lot of letters on OK Genetic Engineering stationary requesting information on things like DNA Synthesizers. Although the stationary said "GO ALL THE WAY WITH DNA" at the bottom, there were no questions from vendors. I got most of the information I requested.

Using that information as a kind of raw material, I put out 3 OKGE products and 5 reports. The products were HLIV (Human Lust Inducing Virus); SH gene (Shrinkage Hormone Gene); and NFD (Nuclear Fuel Devouring Bacteria).

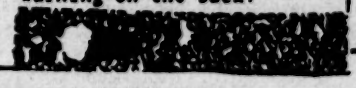
I passed out over 400 copies of Human Lust Inducing Virus. HLIV was meant to weigh environmental concerns against immediate personal needs. Only two people didn't open the box which had dire warnings on the side. One, a rock musician didn't open it for environmental reasons. The other, a gentlemen in his eighties, said he was old enough to know when he had had enough of a good thing.

front →

This box contains at least 220 HLIV virions in culture



HLIV - Human Lust Inducing Virus - developed by OK GENETIC ENGINEERING to solve an important world problem - what to do when he/she just wants to be friends. IMPORTANT - OK GENETIC ENGINEERING has no idea how this product will effect the ecological balance in Northern California. DO NOT OPEN THIS BOX without reading the warning on the back!



back →

WARNING - OK GENETIC ENGINEERING has not received permission to release this organism from NIH. We used a Stanford patent without paying the liscense fee, and we do not know how to file an Environmental Impact Statement. We are distributing HLIV free. Please make your own decision whether or not to release these organisms.

HLIV ←

It was pasted on matchbooks with gold paint on sides. This was pasted inside

↓

uh oh

Judy Malloy

TRAIN YOUR CAT TO DO LAUNDRY! IT'S EASY.

CLERICAL WORK BUILDS CHARACTER.

LIBYA IS A SOUTH SEA ISLAND.

Bad Information

BAD INFORMATION

My new company, Bad Information (1986-), is producing a series of databases about the impact of computers and the information explosion on our society.
Bad Information Base no. 1 is a computer database for Apple computers, made up of quotations from "computer literature." It is meant to describe the effects of computers on our society.

Bad Information Bases 2 and 3 are databases of wrong, misleading, inappropriate information which were made online on Art Com Electronic Network (ACEN) on the WELL. Anyone who logged onto ACEN could enter bad information in these databases. They now contain over 400 pieces of very bad information!

Besides creating art with information, pop conceptual artist Judy Malloy works as a professional "information specialist" -- or research librarian -- at U.C. Berkeley and Matrecon, a private research and development firm. Her online artworks (Uncle Roger and The Bad Information Base) can be viewed on The Well (Whole Earth 'Lectronic Link, 415-332-6106) in the Art Com Electronic Network Conference.
--Jeanne Carstensen

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MEMETICS

THE SCIENCE OF INFORMATION VIRUSES

BY KEITH HENSON *illustration by Jim Woodring*

I caught the Meta-meme (meme about memes) several years ago while researching my article "Information as a Communicable Disease" for the Summer '84 CQ (#42, p. 98). It is easy to pick up this bug, particularly if you've been infected with precious strong memes.

One of the founders of the L5 space-station movement, Keith Henson has also been the carrier for a number of other highly contagious memes. He lists himself as a prime agent for the spread of nanotechnology, space colonies, personal computers, and cult-watching.

Future outbreaks of unknown memes should be reported to the Center for Communicable Memes, c/o this magazine.

—Kevin Kelly

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WE DON'T HAVE A SCIENCE of social prediction. Until recently we haven't even had much in the way of theories. Our continual surprise at the development of cults, religions, wars, fads, and other social movements is a notable exception to the steady progress humans have made in building better models of our environment. Our lack of good models must be considered a major deficiency.

A successful theory for the development of social movements will have to provide a unifying theory for events that make up much of the evening news. It will have to discover common features that lie behind the diverse trends causing problems in Nicaragua, South Africa, Northern Ireland and the Middle East. It should be able to produce a plausible model for the breakup of the Rajneesh cult. The theory should be able to predict the conditions under which Turkey will be subverted by a fundamentalist version of Islam similar to that which has led to so much grief in Iran.

Tentative answers to these questions are beginning to emerge from the new field of *memetics*. Memetics (from meme, which rhymes with cream) is an outgrowth of evolutionary biology. It takes the age-old saying "ideas have a life of their own" literally, and applies models from biology to the evolution, spread, and persistence of ideas (memes) in human culture.

One aspect of memetics can be thought of as "germ theory applied to ideas." Social movements can be modeled as side effects of infectious ideas that spread among people in a way mathematically identical to the way epidemic disease spreads. Drug fads, for example, have closely followed epidemic-like curves. I don't think it can be demonstrated that civil authority has any more effect on the course of these "epidemics" than it had on the course of the Black Death. At a deeper level, research in neuroscience and artificial intelligence is starting to

ACK OF PHOTOGRAPHIC CONTRAST
EXT AND BACKGROUND, THIS PAGE
PRODUCE WELL.

Like genes, memes are pure information, whether the sequence is coded in DNA, printed on paper, or written on magnetic tape.

develop an understanding of why we are susceptible to "infectious information," both the benign and the deadly.

"Meme" is a word coined in purposeful analogy to "gene" by Richard Dawkins in his 1976 book, *The Selfish Gene*. To understand memes, you must have a good understanding of the modern concepts of evolution, and this is a good source. In the last chapter of Dawkins' book memes were defined as replicating information patterns that use minds to get themselves copied much as a virus uses cells to get itself copied. (Dawkins credits several others for developing the concepts, especially the anthropologist F. T. Cloak.) Like genes, memes are pure information, whether the sequence is coded in DNA, printed on paper, or written on magnetic tape.

Humans are not the only creatures that pass memes about. Birds can learn variations of songs. The songs of whales are also replicating information patterns that fit the model of a meme. So is the termite-catching technique that chimps pass from generation to generation.

Meme is similar to "idea," but not all ideas are memes. A passing idea which you do not communicate to others, or one which fails to take root in others, falls short of being a meme. The important part of the "meme about memes" is that memes are subject to adaptive evolutionary forces very similar to those that select for genes. That is, their variation is subject to selection in the environment provided by human minds, communication channels, and the vast collection of cooperating and competing memes that make up human culture. The analogy is remarkably close. For example, genes in cold viruses that cause sneezes by irritating noses spread themselves by this route to new hosts and become more common in the gene pool of a cold virus. Memes cause those they have successfully infected to spread the meme by both direct methods (proselytizing) and indirect methods (such as writing). Such memes become more common in the culture pool.

The entire topic would be academic except that there are two levels of evolution (genes and memes) involved and the memetic level is only loosely coupled to the genetic. Memes which override genetic survival, such as those which induce young Lebanese Shiites to blow themselves "into the next world" from the front seat of a truck loaded with high explosives, or induce untrained Iranians to volunteer to charge Iraqi machine guns, or the WWII Kamikaze "social movement" in Japan are all too well known. I have proposed the term "memeoid" for people whose behavior is so strongly influenced by a replicating information pattern (meme) that their survival becomes inconsequential in their own minds.

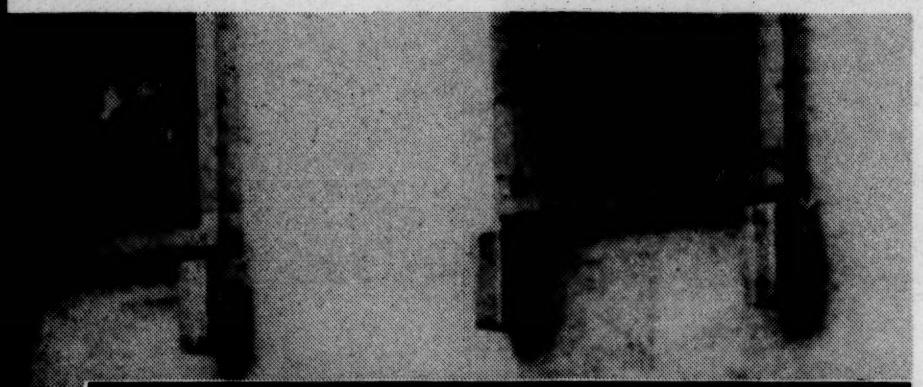
For a vivid example we can hark back a few years ago to Reverend Jim Jones and the People's Temple incident, where 912 people, including Jones, died of complications — poison and gunshot wounds — induced by an information disease. The Children's Crusades of the middle ages were larger and more lethal; only two of 20,000 returned from one crusade. The mass suicide in the first century by the Jews at Masada is a clear example of information patterns in people's minds having more influence over their behavior than the fear of death.

A more seductive example of a social movement set off by a lethal meme comes from South Africa. In the 1850s, a meme (originally derived from a dream) led to a great sacrifice by the Xhosa people during which they killed their cattle, burned their grain, and refrained from planting in the belief that doing so would cause their ancestors to come back from the dead and expel the whites. At least 20,000 and perhaps as many as 60,000 people starved when the predicted millennium of plenty failed to arrive. Known as the Cattle Killing, it was not a unique response for a primitive society being displaced by a more technically advanced one.

Memes that bring about suicidal behavior are, at least, self-limiting. Those which induce one group of people to kill another are much worse, and the social movements they induce are often much larger. The scope of the social movement known as the Inquisition is seldom mentioned in history textbooks, but:

> "The number of victims claimed by the witch-hunts, which lasted for three hundred years, is reckoned by historians to be between five and six million people; it therefore caused more deaths than all the wars waged over the period. . . .
>
> "It is only when one takes into account the brutal, pitiless, expression of mass mania, and that a belief in the devil, his traffic with witches and warlocks, was constantly being fanned anew by the Church . . . that it is possible to gain any measure of understanding . . . ."[1]

The depredations and brutality of the Inquisition were typical of deadly memes stemming from religions or closely related social movements, such as Marxist-Leninist communism. In the last decade, the people of Kampuchea were infested with an anti-intellectual, agrarian utopian meme clearly mutated (in the minds of Pol Pot and his close associates) from the communist meme. They were Eric Hoffer's "True Believers" of the most extreme stripe. The resulting social movement was a massive self-genocide. Over one-third of the population of Kampuchea, including almost all of the city dwellers and the educated, died before the Vietnamese (embarrassed by news stories of rivers clogged with bodies)



Considered from the viewpoint of memes, Hitler was less a prime mover than a willing victim of this particularly nasty and pervasive variety of information disease.

The Nazis

invaded and put a stop to the killing. Many more would have died had the social movement run its course without interference. Kampuchea will take decades to recover.

History classes have made us more aware of the genocidal depredations resulting from the "master race" meme that was part of the Nazi meme complex. Considered from the viewpoint of memes, Hitler was less a prime mover than a willing victim of this particularly nasty and pervasive variety of information disease. Had plague struck Germany in the '30s instead of Nazism, we would have understood it in terms of susceptibility, vectors, and disease organisms. What did happen may soon be modeled and understood in terms of the social and economic disruptions of the time increasing the number of people susceptible to fanatical beliefs, just as poor diet is known to increase the number of those susceptible to tuberculosis. Communication in the form of personal contact, the written word, radio, and amplified voices are substitutes for disease vectors. A pool of "sub-memes," many of them ancient myth, contributed to the syncretic Nazi meme in much the same way mobile genes contribute to the virulence of the influenza viruses.

Nazism was not the only fanatical movement growing and evolving in the fertile social media of Germany between the wars. The Marxist-Leninist meme was a visible competitor in the early period. Even though most of those infected with the Nazi meme were conquered or killed, and Nazism became a suppressed meme, it cannot be said to have died. As a replicating information pattern that has gone through a great deal of evolutionary honing, it still infects susceptible people today.

A fascinating footnote to the horrors of the German experience with Nazism happened in 1969 when Ron Jones, a teacher in Palo Alto, exposed a high school history class to an intensive, five-day experience with the ideas that made up the Nazi meme. The experience of that week was originally published as "Take as Directed" in *The CoEvolution Quarterly* (CQ #9, p. 152), and a few years ago was made into a TV movie, *The Wave*. Over four days, Jones introduced and drilled his students in concepts of Strength Through Discipline, Community, Action, and Pride. (The fifth day was devoted to showing them how easily they had started to slip into the abyss.) The enthusiasm with which most of the class adopted the memes and spread them to their friends, swelling a 40 student class to 200 in five days, made it one of the most frightening events the teacher had ever experienced. Given the track record of the Nazi meme, the mini-social movement his experiment set off is no more surprising in retrospect than the medical effects would have been if the teacher had sprayed smallpox virus on the class.

An empirical characteristic of large, long-lived religious movements or related social movements (at least in the West) is a scripture or body of written material. This may function to standardize the meme involved or at least slow its evolution as the number of people infected with it grows. From Scientology right back to the Hindu Vedas, I can think of no counterexamples. Social movements involving more than a few thousand people or lasting more than a few years may have been rare before writing came along.

I have noticed several features of social movements derived from dangerous memes. One is self-isolation of the infected group or at least of new recruits, from the rest of society. This need not be an "intelligent" action taken by the "leaders." There may be no more thought involved than the evolution of white moths into dark in grimy industrial England. The "fanatic cult" memes which incorporate isolation are the ones we observe; those which do not incorporate isolation are like light moths, gone and not observable.

In the case of the Soviet Union, the communist meme survives in a society largely isolated from the rest of the world. In recent years the isolation may have resulted from reasoned considerations about the fragility of the communist meme in open competition with other memes. A more parsimonious view would note that without originally having a strong isolation component, the communist meme would have had no more social influence in the USSR than it has had in, say, France.

Isolation makes possible exposure to a single meme (or meme set) many times a day for months or years without much contact with other memes. Exclusive exposure to one meme (also known as brainwashing) induces a "dependent mental state" in some people.

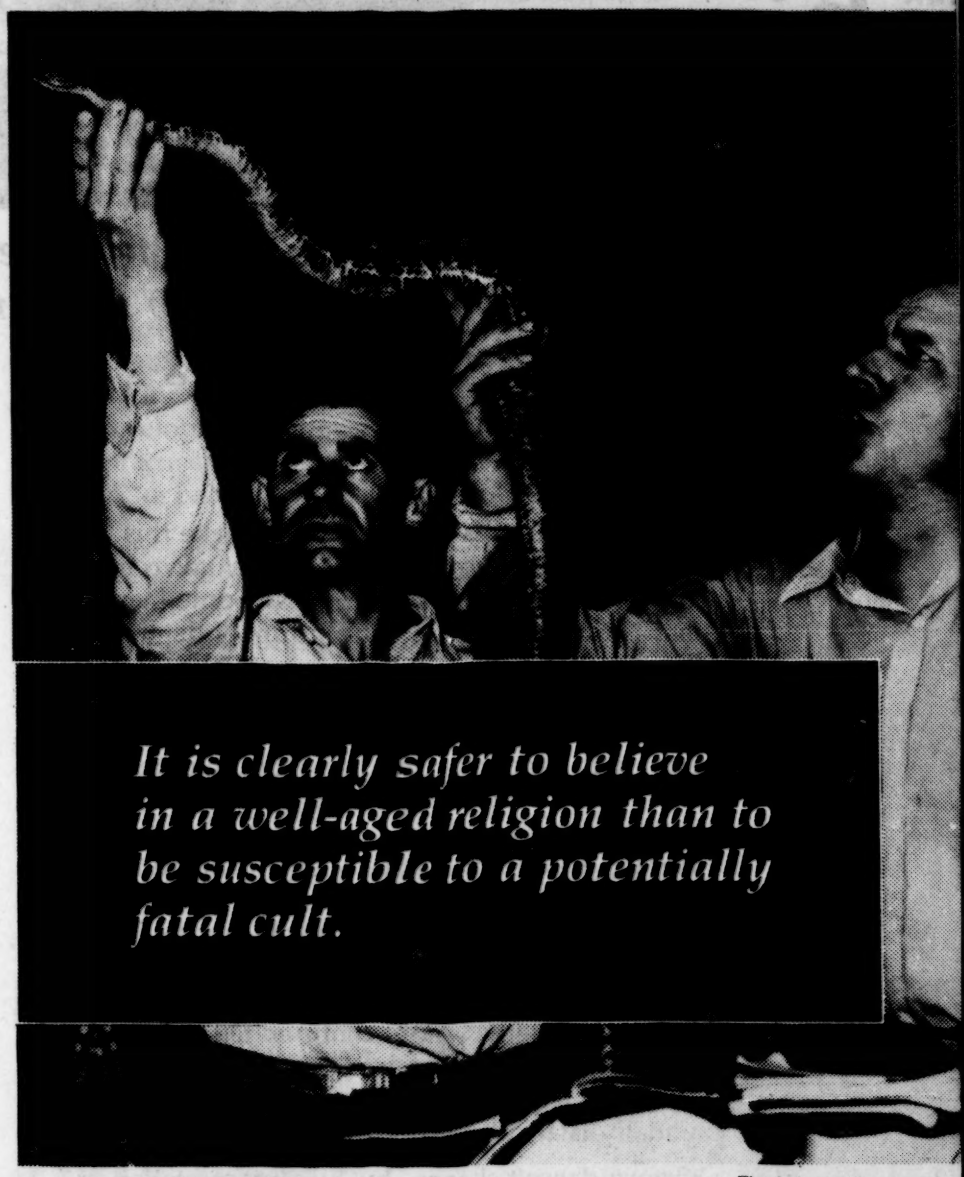
Thankfully, most of us have not experienced the dependent mental state firsthand, but we have all seen such people on the news programs boarding buses for the front in Iran, or been harassed by them in airports, or had them knock on our doors and try to infect us. It is clear that the people who suffer from extreme cases of "information disease" have lost much of their ability to take care of themselves or their children. Truly dedicated people often fail to replace themselves, since too much of their life energies are channeled into propagating the infecting meme. One example comes from the largest subdivision of Christianity, where celibacy among its most dedicated has long been institutionalized. The Rajneesh cult practiced the opposite of celibacy, but discouraged births to the point of sterilizing the barely pubescent female children of its resident members.

Given that memes have been interfering with our reproduction for a long time, one must wonder why humans are still so susceptible to information diseases. The answers to such questions are starting to come from research in artificial intelligence, neuroscience, and archeology. It is becoming apparent that our vulnerabilities are a direct consequence of the way our minds are organized, and that organization is a direct consequence of our evolutionary history.

Marvin Minsky (a principal founder of AI) and Michael Gazzaniga (one of the major workers in split brain research) have independently come to a virtually identical model of the mind. Both view minds as vast collections of interacting, largely parallel (co-conscious) modules or "agents," or a "Society of Mind."[2] The lowest level of such a society of agents consists of a small number of nerve cells that innervate a section of muscle. A few of the higher-level modules have been isolated in clever experiments by Gazzaniga, some of them on patients whose right and left hemispheres had been divided by trauma or surgery.

One surprise from this work is that we seem to have our mental modules arranged in a way that guarantees we will form beliefs. What we believe in depends, at least in part, on what we are exposed to and the order in which we are exposed. Gazzaniga argues that we slowly evolved the ability to form beliefs because the ability provides a major advantage in surviving. Being able to infer, that is to form new beliefs, and to learn, in the sense of acquiring such beliefs from others, was a major advance over learning by trial and error. Being able to pass the rare new ways our ancestors found for chipping rock or making pots from person to person and generation to generation was vital in allowing humans to spread over the Earth.

But as this ability became the norm, communicating human minds formed a "primal soup" in which a new kind of non-biological evolution, that of replicating information patterns or memes, could get started. A wide variety of competing memes has evolved in the intervening seventy thousand years or so. It should not be surprising that the survivors of this process, like astrology or religions, are so effective at inducing their hosts to spread and defend them. It is also plausible that in the tens of millennia since memetic evolution became a major factor there



It is clearly safer to believe in a well-aged religion than to be susceptible to a potentially fatal cult.

The American Image

has been biological co-evolution. The parts of our brains that hold our belief systems have probably undergone biological adaptation to be better at detecting dangerous memes and more skeptical about memes that result in death or seriously interfere with reproductive success.

This type of co-evolution is known as an "arms race" to biologists. One such biological arms race has resulted in almost perfect egg mimicry by the cuckoo and in correspondingly sharp visual discrimination in the birds it parasitizes. By analogy, while we get better at spotting dangerous memes, the memes may be evolving to be more effective at infecting us. Advancing technology (which itself is an improving collection of memes) changes the environmental conditions where memes survive or fail as well. The modern telephone system and the tape cassette player were major factors in the takeover of Iran. It has been argued that the rise of the Nazis depended strongly on radio reaching a previously unexposed and unsophisticated population.

I have picked dangerous examples for vivid illustrations and to point out that memes have a life of their

Social movements involving more than a few thousand people or lasting more than a few years may have been rare before writing came along.

own. The ones that kill their hosts make this hard to ignore. *However, most memes, like most microorganisms, are either helpful or at least harmless.* Some memes may even provide a certain amount of defense from the very harmful ones. It is the natural progression of parasites to become helpful symbiotes, and the first such behavior that emerges in a proto-symbiote is for it to start protecting its host from other parasites. I have come to appreciate the common religions in this light. Even if they were harmful when they started, the ones that survive over generations evolve and do not cause too much damage to their hosts. Calvin (who had dozens of people executed over theological disputes) would hardly recognize Presbyterians three hundred years later. Contrariwise, the Shaker meme is now confined to books, and the Shakers are gone. It is clearly safer to believe in a well-aged religion than to be susceptible to a potentially fatal cult.

History doesn't change, but our interpretation of it can. For example, the contemporary "causes" of historical epidemics (such as the miasma theory) have been totally supplanted by germ theory explanations. Before germ theory came along, memes of causality for epidemics were remarkably stable. The "explanation" for the Black Death of 1348 was still in use for the Philadelphia Yellow Fever epidemic of 1796. Similarly, various "explanations" for wars have been with us for hundreds of years.

Memetics provides a new way to analyze recent wars and the roots of current disputes. In this view, the ultimate (though unaware) protagonists of World War II were memes such as the Nazi "master race," and the Marxist-Leninist meme (MLM). The current clash between the Soviets and the Western world can be viewed (in a grossly simplified way) as a meme conflict for space in minds between the religion-like, competition-intolerant mono-meme of communism and the western tolerance meta-meme. While it is not a religion by any reasonable definition, the Marxist-Leninist meme is clearly in competition for the "belief space" in minds usually occupied by religious memes. It, and its more cultish offshoots, have the typical virtues and excesses of cult-stage religious memes. In an amusing twist, the "godless" communist meme is the more religious in tenor of the two in its battle for mind space with secular Western culture!

Reviewers of an earlier draft of this article objected to my description of Soviet memes. Words like "tolerant" and "intolerant" have acquired a great deal of positive/negative connotation in the Western world, but in describing memes, I am using them in the same way we would say that a mold colony is intolerant of a bacterial invasion. With respect to the belief system that dominates the meme pool of the other superpower, I am trying to be descriptive, not partisan.

If anything, I would think that understanding the memetic nature of religions and related movements like communism would defuse the emotional connections and substitute something closer to dispassionate understanding of the parasitic-to-symbiotic memes behind such social movements. It has had that effect on me. Even the most gruesome features of communism are what they are simply because those features were (and are) necessary for the meme to exist in a world of competing memes. Isolation, for example, is a common feature of virtually all successful religious-type memes while they are in the cult stage. Anyone who has studied history knows that suppression of competitive memes by the power of the state is a common experience once a meme of this class has infected the leaders or they have been replaced by those infected. And if the Christian religion was a mainstay of the aristocracy, serving to keep the peasants in place, Soviet Communism is no less supportive of its own hereditary elite. As a successful and persistent meme, that has appeal even to people who know the realities of its practice. It commands a certain grudging respect.

From a meme's viewpoint, tolerance of other memes is *not* a virtue. It is, in fact, a fatal characteristic for a particular meme, as memes inducing intolerance to other memes would soon displace it. On the other hand, a meta-meme of limited toleration, or even cooperation among memes, is possible. The Western

meta-meme of tolerance seems to have emerged from an ecosystem of memes in much the same way that cooperative behavior has been modeled as emerging from an ecosystem of individuals.[3] In the area of meme tolerance the Western world may be unique. We think of censorship as evil; where but in an advanced ecosystem of memes could such a strange idea have emerged?

There are historical traces for the development of the meta-meme of tolerance. This particular character of our ecosystem of memes has been developing at least since the writings of the Greeks and Romans were rediscovered during the Renaissance. Studying inactive pagan religions may have been the first step in developing a tolerance for a variety of religious memes. The fragmentation of the dominant religion during the Reformation led to a series of largely indecisive religious wars in most of the major countries of Europe. Sheer exhaustion may have been one of the most significant factors in developing a grudging tolerance, which in these later times has taken a patina of virtue in the division of our culture known as "liberal."

In this view, Western culture is a vast ecosystem where memes of many classes engage in "fair" competition with each other. Attempts to subvert fair competition by changing laws or education (such as introducing "creation science" into schools) draw opposition from defenders of a wide variety of memes which have evolved within this environment. This model may provide testable explanations for both Western culture's tolerance of intolerant memes (such as creation science and the MLM) and the hostility these memes evoke from various segments of the culture. David Brin's "Dogma of Otherness" in the April 1986 issue of *Analog* is recommended for those who want to consider the origins of such peculiar ambiguities in our culture.

Several current social movements are obvious candidates for examination with memetic theory. Given the available data, we may be able to predict the remaining course of the "non-literate graffiti epidemic," which has spread in the past 15 years from New York City to remote corners of the country. There are substantial financial reasons (such as the cost of mark-resistant walls) to want to know if scribbler behavior will be a limited epidemic, or will this behavior become an endemic part of our culture?

Drug use, clearly a replicating pattern of behavior passed from person to person, is another "social movement" where the similarity to epidemic waxing and waning has been widely used by reporters, and noted without much explanation in a number of learned journals. If it were formally considered as an epidemic with memes as the infecting agents, the ways by which the behavior spreads might get more attention. Antidrug programs might be evaluated in terms of how well they induce reasonable behavior. Some efforts in the past, especially those which wildly exaggerated the dangers of a drug such as marijuana, may have *increased* the behavior of taking other drugs. These efforts may have immunized those exposed against believing any official pronouncements about drugs.

Formal consideration of drug use as an epidemic of meme-induced behavior might also lead to the realization that the percentage of people susceptible to abusing most drugs is not all that large. (Cigarette smoking is an exception.) For example, most of the people I know who have tried cocaine don't care for it. Not liking the effect, they wouldn't use it if it were free. People who really like opiates aren't that common either.

IF most conflict in the world is an indirect effect of memes, memetics holds as much potential for reducing human misery as the germ theory of disease. Just being able to model the interactions among the Soviets, the West, and the Islamic groups may make the world a safer place. Widespread understanding of hard-to-avoid human susceptibilities and an ecosystem-like model of replicating information patterns that have no short-term interest in their host (and indeed no consciousness at all) may lead to the development of meme evaluating "mental health practices" just as knowledge of disease has changed our behavior in regard to drinking ditchwater.

If this article has succeeded in infecting you with the meme-about-memes, perhaps it will help you be more responsible about the memes you spread and less likely to be infected with a meme that will harm you or those around you. ■

1. p. 163, *Five Thousand Years of Medicine*, Gerhard Venzmer (trans. by Marion Koenig); Taplinger Publishing Co., New York 1968.

2. *The Society of Mind*, Marvin Minsky, 1986; Doubleday, New York. (See also "Society of Mind," *WER* #51, p. 4).

3. *The Evolution of Cooperation*, Robert Axelrod, 1984; Basic Books, New York.

The American Image

WHAT ONE WOULD REALLY like for a drug is an ally that would make healthy minds perform better. Quicker. More memory-reliable. Increased concentration. Since our medical paradigm has no mandate (= no funds) to heal the healthy, fiddling with brain improvement chemicals is going to be illegal these days. Hence the pseudonym of the author, who is active in the persistent subculture of psychedelics and mind-affecting biochemistry. He edits an uncategorizable publication called High Frontiers/Reality Hackers *(see p. 59)*. *The current drug hysteria has pushed promising research in this field into rough, personal evaluations like the following. I bet there is a reputation to be made by a scientist who could lift this out of the outlaw realm into controlled lab science.* —*Kevin Kelly*

MAY YOU NEVER SLEEP

COGNITION ENHANCING DRUGS

INTELLIGENCE-INCREASING DRUGS MIGHT BE LAbelled "Cognitive Enhancers," "Memory Enhancers," or, in some cases, "Psychic Energizers." What many of these drugs and nutrients have in common is that they produce effects similar to the effects people are seeking from popular stimulants such as caffeine, amphetamines and cocaine. These popular drugs temporarily enhance cognition and memory, and amp up the user's energy levels only to leave the user depleted. Cocaine and amphetamines might properly be labeled as short-term intelligence-increase drugs and long-term intelligence-decrease drugs.

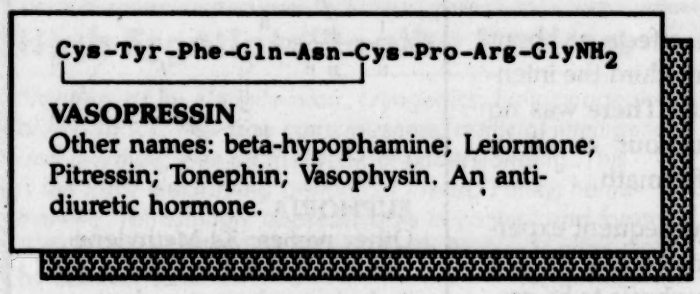
However, the drugs and nutrients discussed in this review are all believed to create long-term improvements in memory and cognition. Some of them also provide the short-term high-energy states associated with the stimulant drugs. Also, there is virtually no tendency towards the kind of weirdness and darkness of the spirit which so often accompanies even the occasional speed or cocaine high. It seems that while the illicit stimulants cause short-term release but long-term depletion of norepinephrin, many of the memory-enhancing drugs and nutrients work on the noradrenergic nervous system in a different way, apparently modulating nerve cell control mechanisms so that the cellular response is neither too great nor too little. This is a gross oversimplification. More precise information on each of these cognitive enhancers is easily available to the serious researcher. Accurate and concise information for the layperson is easily available through the popular written works of Durk Pearson and Sandy Shaw who, whatever one might think of their bucket-of-pills-a-day personal regimen, do carefully monitor all of the research in this field.

BY R. U. SIRIUS

This survey deals primarily with the short-term experiential effects of these compounds, since I only have the experience of a relative and imprecise ongoing use of one drug, Pemoline, and no scientific proof of any intelligence increase on my part. Besides, a three-hour play can be realistically reviewed. Reviewing a life is a somewhat more dubious prospect.

In consideration of all this, I hereby present a review of intelligence-increasing drugs. *May you never sleep.*

Vasopressin — Definitely the most euphoric of the memory-enhancing intelligence-increase drugs outside of the one being called "Euphoria" (more on Euphoria later), Vasopressin is marketed as Diapid, a prescription drug made by our old friends at Sandoz. It can also be ordered as Vasopressin through chemical supply houses by those who know the ropes. I had five squirts of Vasopressin out of a nasal inhaler. I was surprised by how strong the effects were. I had that charged-up hyperconfident rush that one experiences with cocaine, but combined with much clearer ideation and without the numbing and discomfort or the strange and disquieting hard edges which often accompany even the more euphoric coke highs. It didn't last very long, about two hours, most of which were unfortunately spent riding the BART and walking. By the time I got home, the experience had pretty well dissipated. I did not have an opportunity to experience Vasopressin as a work/writing drug. It was clear, however, simply from reading (I was rereading *Gravity's Rainbow* at the time and I consider that a fairly challenging test of comprehension) on the BART ride home, that Vasopressin is an excellent

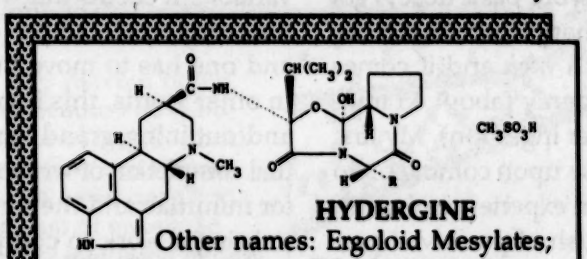


VASOPRESSIN
Other names: beta-hypophamine; Leiormone; Pitressin; Tonephin; Vasophysin. An antidiuretic hormone.

tool for rapid learning and comprehension of complex systems of thought.

The only other time I had Vasopressin, it was in the form of Diapid. I had only two squirts at a party late at night on top of fairly substantial amounts of marijuana and alcohol. It didn't noticeably cut through the depressant effects of those drugs. However, I did experience an intensified and prolonged orgasm!

Hydergine — The invention of one Dr. Albert Hofmann of Sandoz laboratories. I know of many people who got their hands on buckets of this stuff and I know of nobody who continues to take it. The effects are said to be cumulative rather than immediate and everybody seems to lose interest. "I forgot to take my Hydergine" is a term which one often hears from chagrined "intelligence agents," fully cognizant (even without Hydergine) of the ironies involved. This probably says more about the people that I hang out with than about Hydergine as an intelligence increase agent.

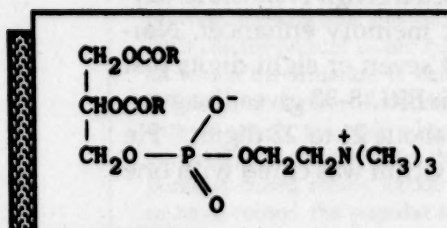


HYDERGINE
Other names: Ergoloid Mesylates; Dihydroergocristine; Dihydroergotoxine Mesylate; Dihydroergotoxine Methanesulfonate; Circanol; Deapril-ST; Niloric; Trigot. A cognition adjuvant.

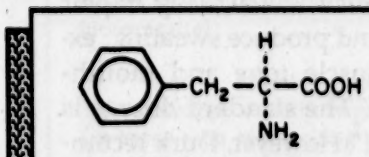
Incidentally, Dr. Hofmann told a friend of mine that one can get exactly the same effects one gets from daily megadoses of Hydergine by using 25 micrograms of LSD daily. I have not experimented with subthreshold acid as an IQ substance so I cannot comment.

Lecithin, Choline with Inositol, Phenyalanine (with vitamin C and B6) — While perhaps less intriguing and glamorous to technophilic reality hackers, most of these easily available cognitive enhancers have a substantially perceptible effect. Lecithin seems to be the exception. Even at "Durk and Sandy" dosage levels there was no noticeable enhancement of focus, recall, etc. Choline and Inositol, at about three grams each, produce mild but definite results with no discomfort and can be used daily. I did this once for about a month and found myself losing my sense of humor. However, if you're already humorless you might just as well give this a go. Phenylalanine is quite speedy. While it can be used for creativity and focus it tends to make one irritable. For emergency use only.

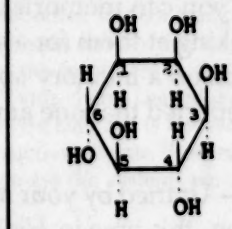
Deaner — This is getting really popular with the "health food set." Experientially, the effect is very subtle but noticeable. I've tried this a few times and what I've found is that if I already have a task to do, I will do it and, in retrospect, I will realize that I sustained my attention for an unusually long time without flagging or needing a break. However, if I use this (as I often do with other cognitive enhancers) without a precise sense of what the task at hand is, it doesn't clarify and help to motivate activity. This is an important point. Drugs such as Vasopressin, Pemoline, Euphoria and THA can actually cut through confusion and ennui and help invoke will. My guess is that most of these substances also work, to varying degrees, on the pleasure centers of the brain, provoking one's natural *joie de vivre* and thereby provoking enthusiasm for creative and organizational activities.



LECITHIN
Other names: Phosphatidylcholine; Lecithol; Vitellin; Kelecin; Granulestin. Often used as an emulsifying agent.

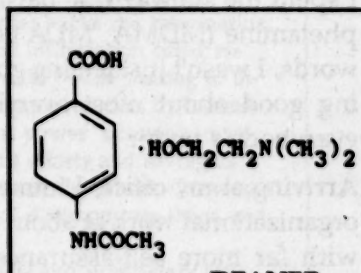


PHENYLALANINE
Other names: alpha-aninohydrocinnamic acid. An essential amino acid for humans.



CHOLINE WITH INOSITOL
Other names *(Choline):* Bilineurine. A constituent of lecithin. *(Inositol):* Hexahydroxycyclohexane; cyclohexanehexol; cyclohexitol; phaseomannite; dambose; meso-inosite. A vitamin.

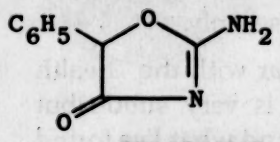
Pemoline (usually combined with Magnesium) — The information most frequently passed around in reference to Magnesium Pemoline was published by the Church of the Tree of Life some years ago in their publication *Bark Leaf.* It recommends taking "Mag-Pem" at 50-100 mgs. every day for two months in order to substantially increase your I.Q. *OUCH!* This program is a sure ticket to severe headaches and extreme nervousness. However, in the 20-30 milligram range, I've found that this can be used twice weekly with excellent results. The lift is very substantial and noticeable. I, and several of my friends, find it particularly good for writing, both creative and functional. For rapid-fire associations and grand synthesis just combine it with moderate amounts of cannabis (Sativa if possible). It lasts about twelve hours, coming on slowly and having its greatest effect at around the fifth through the tenth hours. Clarity and verbal acuity are the strong points here. At times, the sheer mass of information, new thoughts and connections can overwhelm and put one into a rather confused state, particularly if one is not applying oneself to something. When this occurs,



DEANER
Other names: Deanol Acetamidobenzoate; 4-(Acetylamino)benzoic acid with 2-(dimethylamino)ethanol; Diforene. An antidepressant.

I find that I can slow down my thoughts to a point where there is coherence simply by verbalizing them or writing them down. Unlike its close cousin "Euphoria," Pemoline is emotionally bland. It is not a pleasure drug. WARNING: From my observations, approximately one in every ten people get nothin' but headaches from even small doses of Pemoline.

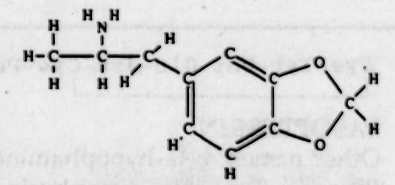
Euphoria — Well, someone took Pemoline, twisted it around a little bit and put a whole lot of pleasure into the equation. This might be a *dangerous* drug! There are a lot of different things that seem to happen with Euphoria. The first time I took it (40 milligrams — I've learned since that 25 mg. is considered your basic dose) I got really charged up. This is definitely a *high* and it comes on suddenly (about 45 minutes after ingestion). My first response upon coming on to it was an experience of an intense rush of perceived personal power. I found myself goosestepping down the busy Berkeley streets thinking about how good I felt, how successful I was destined to be, and knowing that the world was my oyster. After about 15 minutes of this as I found myself leaping down the BART escalator, I had to tell myself to slow down for fear that I would be completely drained later on. Although I didn't really slow down at all during this experience, I did bring myself into a somewhat more humane mindset and I spent the subway ride having almost methoxilated amphetamine (MDMA, MDA etc.)-type ideations. In other words, I wasn't just feeling good about myself, I was feeling good about most everybody else. The world was everybody's oyster.



PEMOLINE
Other names: 2-Amino-5-phenyl-4(5H)-oxazolone; phenoxazole; phenylisohydanoin; azoxodone; Azoksodon; Cylert; Dantromin; Deltamine; Endolin; Hyton; Kethamed; Nitan; Notair; Pioxol; Pondex; Ronyl; Sigmadyn; Sisral; Sofro; Tradon; Votital. A stimulant.

Arriving at my office, I immediately found myself doing organizational work at about three times the normal rate with far more self-assurance and fewer mistakes than usual. Simultaneously, I was entertaining perspectives on the nature of my true will and making important phone calls which I had put off for some time. I did about thirty hours' worth of work in about ten hours. I literally could not stop. I tried to make myself take a break for about ten minutes. Within a minute, I found my hand going into a drawer to pull out another file which needed reorganizing. Believe me, this is very unusual behavior. I hate organizational work.

This all might sound like the first blushes of an amphetamine high, but the emotional overtones and the mentation under this substance is of a softer and more inwardly whole (less alienated) quality. As I've already indicated, the Euphoria high seems to have a slight methoxilated amphetamine quality to it. All in all, this was a very powerful experiencing of clarity, self-assurance and cognitive ability. The following day, I experienced the same sort of effects at about one-third the intensity. There was no burnout at all in aftermath.



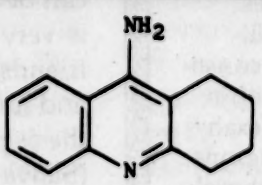
EUPHORIA
Other names: 3,4-Methylene Dimethoxy Methamphetamine. A designer drug stimulant, chemically related to MDMA, Ecstacy.

Subsequent experiments have shown Euphoria to be predictable as an effective tool for organizing binges, brainstorming sessions and radio talk-show appearances. It also seems to induce ongoing personal growth in terms of clarity of personal will. (I've received three other testimonies in this same direction.) As a writing tool, I've found Euphoria to be variable. It seems that verbal acuity comes on strong but the verbal circuits burn out quickly from intensity of use and one has to move on to less verbally oriented tasks. In other words, this is generally good for creative flashes and outlining grand syntheses but not too good for actual completion of written work. It gives one an impatience for minutiae and the kind of careful faceting that it takes to bring a work to completion. In terms of appreciation and comprehension of aesthetics and information, this seems the opposite of its close cousin Pemoline. The accessing mode favored is visual. One wants to explore a painting or photograph or watch a movie rather than read a book.

My only complaint about Euphoria is that it lasts 16 hours, which feels about four hours too long. In two of my five experiences, the last four hours were spent feeling slightly "headachy" and weary, although there was still no burnout following sleep. I would say, at this point, that Euphoria should not be used more often than once a week since it is so powerful and so much energy is expended in the experience. This is easily the most *fun* of the intelligence increasers and, as such, is probably most likely to be abused.

PRL-8-53 — Untried by your reviewer at this time. However, Durk Pearson is quoted in *High Frontiers* as saying that "PRL-8-53 is a terrific memory enhancer. Normally you can memorize about seven or eight digits just by looking at them for a second. PRL-8-53 gives the average person a memory span of about 21 to 22 digits." He also reported that one amnesia victim was cured with one dose.

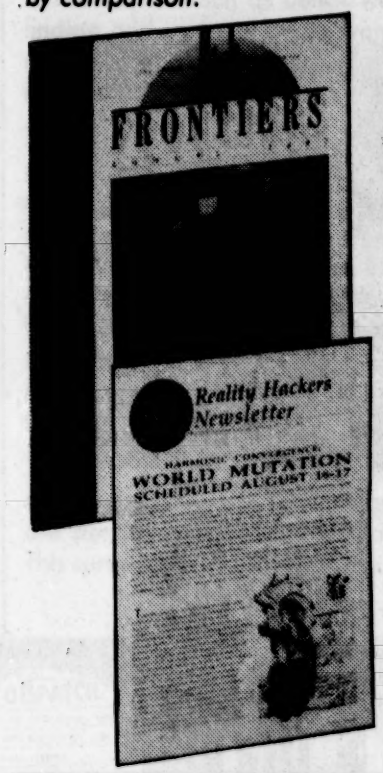
THA — Untried by your reviewer at this time. Again, Durk Pearson, this time in *High Frontiers Reality Hackers Newsletter:* "In combination with arecoline, THA has been found to be remarkably effective as a memory improver . . . it's important that the dosage be individualized . . . too much will actually impair memory and produce sweating, excessive muscle tone and mouth-watering." The standard dosage is "1 to 2 mg." However, Durk recommends that you start with a quarter of that every two to four hours and work up — if you get those side effects, back off. ■



THA
Other names: 1,2,3,4-Tetrahydro-9-acridinamine; Romotal; Tacrine. A respiratory stimulant.

High Frontiers/Reality Hackers

Frontiers as in: life extension, cryogenics, hallucinogenics, biofeedback, new age consciousness, artificial intelligence and anything else on the brink of understanding. This is the most electrifying periodical I read. Funky, home-brewed, refreshingly unpredictable in content and format, they'll try out anything. ***Whole Earth Review*** *is often stuffy by comparison.*
—Kevin Kelly



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I'm very nervous right now because I have no backups of myself. I back up my disks quite often but I've never once had a backup of myself. So I'm very interested in any technologies that might emerge in the future that will allow backing up the essence of a human. Therefore, I'm interested in life extension and computer-human interface.
—Reality Hackers Newsletter

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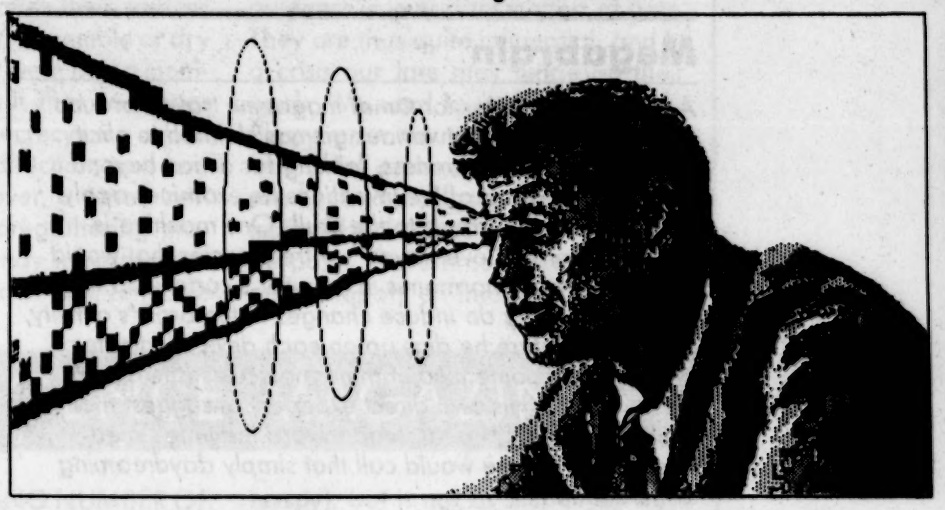
I know that many people who have shared the chemical mind experiences of the past may be surprised or even shocked when I suggest that electrons are the next evolutionary step in turning yourself on, booting up your mind, activating new circuits in your mind. I don't see how you can use psychedelic drugs and not want to talk in electrons. Anyone who's had profound LSD experiences knows that the brain operates in clusters of flash on/offs, the so-called vapor trails. The clarity of atomic vision you get when you're very high on LSD or peyote or psilocybin is a sheer tuning in to the way the brain actually operates. . . .
—Timothy Leary,
High Frontiers



JFK: America's first psychedelic president?

sirius' soapbox

Welcome to *Reality Hackers,* the newsletter for those concerned with Access. The reality hacker hails the individual-right-to-know ethic and endorses the notion that information should be shared. She uses whatever tools are available to circumvent, break through or transform those programming glitches, bureaucratic obstructions and proprietary voodoo that limit the individual in her quest. The quest can be anything at all which the situation of being an embodied human being might have to offer. Embodiment connotes the reversal of entropy.As such, the reality hacker is in the front lines in the battle against entropy. But don't let it stop there! Legendary Berkeley-based reality hacker Severe Tire Damage is believed to have coined the popular and instructive slogan: "Reversing entropy is everybody's business." Here are the systems we will be accessing:

Hacking the Human BioComputer

Reality hackers are out to access, optimize and maximize the intelligence, energy, pleasure states, health and healing possibilities, visions, play and creativity, longevity, wisdom and humor residing in the brain, the mind, the nervous system, the senses and any other more subtle dimensions of the human biocomputer.

Hacking the Information Grid

This concept actually requires a multilevel approach. There are those who are hacking the information of universe using the extensions of human knowledge we call technique and technology - our frontier scientists, mathematicians and philosophers. We believe that the sum total of all of the bits of information currently being received and processed by highly advanced human operating systems equals a total transmutation of the human condition into a higher level of ecstatic functioning. And we want access. NOW!

While the frontier scientist hacks into the information of universe, the evolutionary media artist hacks the information transfer technology and transmits the information being recieved by the frontier scientist. The unimpeded sharing of information accelerates the rate of human evolution by increasing peoples' intelligence and personal power allowing us to build upon and synergize one other's efforts and saving us from each having to personally reinvent the wheel. Conversly, secrecy keeps people "in the dark", disempowers them, and creates information elites.

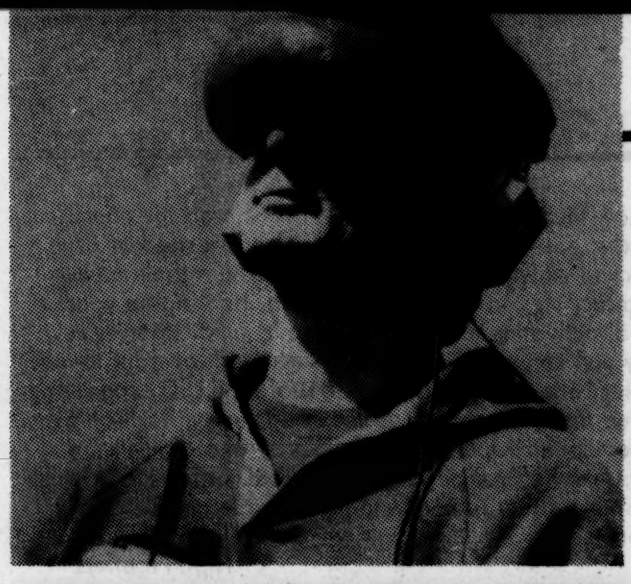
At the present time, secrecy, paranoia and proprietary attitudes are pandemic from Washington D.C. to Silicon Valley. In the post-Reagan era, we will see a very rapid and sudden reversal of this trend. Disinformation and information hoarding will be considered sociopathic behavior. Seen from an evolutionary perspective, disinformation and information hoarding are the major crimes against the species. In this context, the reality hacker is an Information Age Robin Hood whose pleasure and duty it is to make certain that the latest breakthroughs and the hottest new information *not* be the exclusive property of authoritarian structures and information elites. Reality hackers promote self-government and self-determination by hacking the information grid and sharing that information with everybody.

Hacking Better Tools To Hack With

Hardware: Brain technologies, vitamins, nutrients and chemicals, computers and other high technologies.
Software: Methods for thinking creatively and with clarity, methods of overcoming destructive psychological programming, books, films, videos, networks, workshops, THE HIGH FRONTIERS MONTHLY FORUM, friendly, loving and compassionate interaction.

We want to hear from you! Add your intelligence to the transmission. Get in on the BIG HACK. The human species is about to get a major upgrade. Don't get left behind! Ω

—Reality Hackers Newsletter



The opaque goggles of the Tranquilite give the user a stylish "human fly" look appropriate for all occasions. Indirectly lit from within, the goggles present a featureless visual field called a *ganzfeld*, while the compact pink noise generator provides a steady auditory stimulus that drowns out external sounds. The device thus serves as a sort of portable sensory isolation chamber.

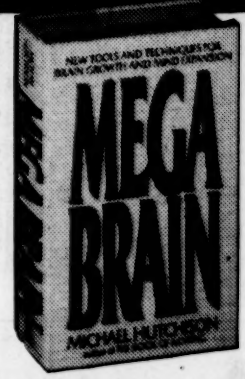
(Below) Joseph Light's simple TENS (Transcutaneous Electrical Nerve Stimulator) device is made from "about nineteen dollars' worth of parts from Radio Shack." Many users report that at certain frequency settings, the instrument can increase alertness and concentration, and produce mild euphoria.

Megabrain

A gee-whiz reporter for **Omni** *magazine travels around the country trying out various gizmos claimed to elicit altered states of awareness, looking for action beyond biofeedback. Most of the inventions he examines apply weak electrical currents to the skull. One machine is reputed to emit "love waves" — frequencies that would churn up cheery hormones in the user's cortex. Do they work? Well, they do induce changes in the brain's activity, and the literature he digs up on each device indicates they produce some kind of mind molecules (the appropriate ones?). His own direct experiences suggest that the contraptions, in general, tend toward instilling "alert relaxation." Some would call that simply daydreaming or meditation.*

Too bad his reporting is so uncritical. On the other hand, he deserves attention for his heads-on experimentation. He also supplies manufacturers' references for second opinions. It's the only comprehensive foray into the flaky world of do-your-own brain tuning, and so may be worth a look. —*Kevin Kelly*

Megabrain
Michael Hutchison
1986; 347 pp.
$4.95
($5.95 postpaid) from:
Ballantine/Random House
400 Hahn Road
Westminster, MD 21157
800/638-6460
or Whole Earth Access



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The ancient Egyptians apparently used natural electrical stimulation quite frequently, zinging themselves with the Nile electric catfish, which can be seen on Egyptian tomb reliefs. Some two thousand years ago a Greek physician, Scribonius Largus, was known for his "seashore treatment," which he prescribed for sufferers of pain (particularly gout). The patient was advised to put one foot on an electrical torpedo ray and the other foot on wet sand: the electrical circuit was completed, the patient got zapped, the pain was alleviated.

•

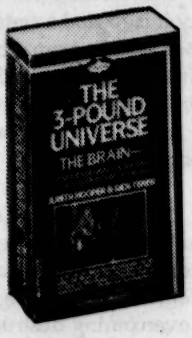
Monroe found that by dropping the body into a state of profound sleep and then triggering a wakeful awareness with a combination of extremely rapid beta signals, he was able to induce the body vibrations and other sensations that led, for many of his subjects, to those mysterious mental events known as out-of-body experiences.

The Three-Pound Universe

Man, with arm around graduating son-in-law, pointing to the future. "I have one word for you, son: Brain Juices."

This lucid book constitutes the necessary orientation to the flow of neuro-transmitters from the mind to the soul.
—*Kevin Kelly*

The Three-Pound Universe
Judith Hooper
and Dick Teresi
1986; 410 pp.
$12.95
($13.70 postpaid) from:
Dell Publishing Co.
6 Regent Street
Livingston, NJ 07039
800/626-3355
or Whole Earth Access



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Back in the mid-1950s Robert Heath, chairman of the psychiatry department at Tulane Medical Center in New Orleans, found a mysterious protein in the blood serum of schizophrenics, which he baptized *taraxein* (from the Greek for "madness"). After experimenting with monkeys to make sure the procedure was safe, Heath injected the taraxein fraction into nonpsychotic prisoner-volunteers (using a comparable serum fraction from normal people for controls). Like characters in a mad-scientist horror movie — and, as a matter of fact, these experiments were filmed, like a kind of neuropsychiatric *film noir* — the men who received the taraxein injections were plunged into instant psychosis. "Some hallucinated and had delusions and thought disorders," Heath recalls. "Some became severely anxious and paranoid. Some were withdrawn and catatonic. An hour or so later, they went back to being entirely normal."

•

In the 1940s MacLean became fascinated with the "limbic storms" suffered by patients with temporal-lobe epilepsy. "During seizures," he recalls, "they'd have this Eureka feeling all out of context — feelings of revelation, that this is the truth, the absolute truth, and nothing but the truth." All on its own, without the reality check of the neocortex, the limbic system seemed to produce sensations of deja-vu or jamais-vu, sudden memories, waking dreams, messages from God, even religious conversions.

"You know what bugs me most about the brain?" MacLean says suddenly. "It's that the limbic system, this primitive brain that can neither read nor write, provides us with the feeling of what is real, true, and important."

AN INTELLIGENT GUIDE TO INTELLIGENCE

BY ROBERT HORVITZ

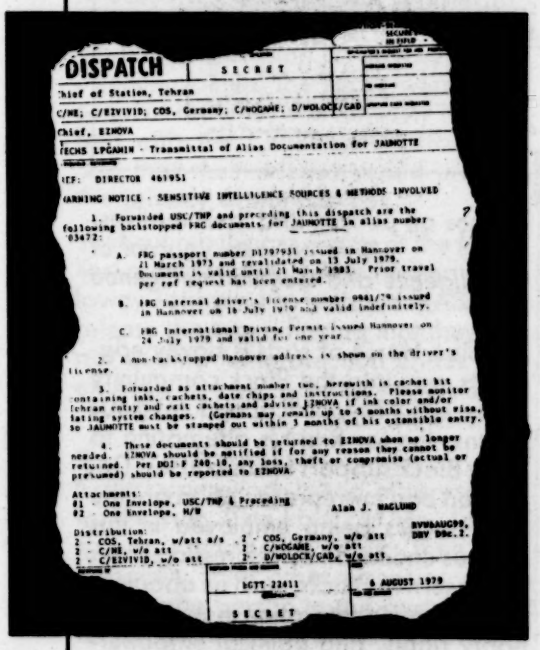
WITH INFORMATION already past the glut stage, we don't need more information so much as better ways of finding and using what we want and need to know. What we need is more intelligence.

Intelligence can be defined as the means by which information is processed to bring out its use-value. It can also be the product of that process. Intelligence can be as simple as passing on a clipping to someone who might benefit from reading it (connecting a need with a source), or as complex as a team-written study projecting the world 25 years into the future.

The two most common vernacular meanings of the word "intelligence" are personal smarts and espionage. This survey deals mainly with the latter.

Intelligence agencies that operate in secret are politically problematic. Those that operate openly, such as the U.S. Census Bureau, usually are not. Intelligence agencies that seek secrecy often argue that this is necessary either because what they want to find out isn't public, or because their sources would surely protest, dissemble or dry up if they knew they were being monitored. The problem is that no matter how well-justified, secrecy also makes oversight, external direction, and control difficult. Moreover, a covert network for information-gathering provides an all-too-handy infrastructure for carrying out secret interventions: events can not only be reported, they can be caused.

Whatever your feelings about the ethics of espionage, there can be no doubt that all national leaders look to intelligence agencies for answers and guidance in important matters of state. They are thus quite influential, and in a crisis our fate may hinge on their work. We need to understand them. Plus, even without security clearances, we can all make use of some of their sources and products, and adapt professional techniques to good noncovert purposes. Government agencies have no monopoly on intelligence.



DISPATCH | SECRET

Chief of Station, Tehran

C/ME; C/EIVIVID; COS, Germany; C/HOGAME; D/WOLOCE/CAD

Chief, EIMOVA

TECHS LPGAMIN - Transmittal of Alias Documentation for JAUNOTTE

REF: DIRECTOR 461951

WARNING NOTICE - SENSITIVE INTELLIGENCE SOURCES & METHODS INVOLVED

1. Forwarded USC/TMP and preceding this dispatch are the following backstopped FRG documents for JAUNOTTE in alias number 03472:

A. FRG passport number D1797931 issued in Hannover on 21 March 1973 and revalidated on 13 July 1979. Document is valid until 21 March 1983. Prior travel per ref request has been entered.

B. FRG internal driver's license number 0981/79 issued in Hannover on 18 July 1979 and valid indefinitely.

C. FRG International Driving Permit issued Hannover on 24 July 1979 and valid for one year.

2. A non-backstopped Hannover address is shown on the driver's license.

3. Forwarded as attachment number two, herewith is cachet kit containing inks, cachets, date chips and instructions. Please monitor Tehran entry and exit CAchets and advise EIMOVA if ink color and/or lating system changes. (Germans may remain up to 3 months without visa, so JAUNOTTE must be stamped out within 3 months of his ostensible entry.

4. These documents should be returned to EIMOVA when no longer needed. EIMOVA should be notified if for any reason they cannot be returned. Per DCI: 3 240-10, any loss, theft or compromise (actual or presumed) should be reported to EIMOVA.

Attachments:
#1 - One Envelope, USC/TMP & Preceding
#2 - One Envelope, H/W

Alan J. MACLUND

SYBEAUGPD, DDV Doc.3.

Distribution:
2 - COS, Tehran, w/att a/s
2 - C/ME, w/o att
2 - C/EIVIVID, w/o att
2 - COS, Germany, w/o att
1 - C/HOGAME, w/o att
1 - D/WOLOCE/CAD, w/o att

DGTT-22611

6 AUGUST 1979

SECRET

CIA agent Ziaodin Mahmoud. —*Geheim*

INTELLIGENCE MAGAZINES

THERE'S A GROWING NUMBER OF periodicals available to the public reporting on intelligence work. They run the gamut from rabidly hostile to sycophantic, from thoroughly researched to merely polemical to just plain fluff. When the stance is critical and the focus is on agencies of the country where the publication is based, an intelligence magazine may be operating at the edge of that society's tolerance for journalism.

Among the better critical journals, ***Intelligence/Parapolitics*** provides a concise monthly overview of recent press reports about covert activities worldwide. Most articles are summarized, others are reprinted whole. Emphasis is always on facts rather than polemics. Published in Paris, it comes in "full" and "summary" editions, both available in either French or English. By all means get the "full" version.

Philip Agee and Norman Mailer helped the ***Covert Action Information Bulletin*** get started in 1978. ***CAIB*** used to make a point of revealing the names and covers of currently active CIA agents. Since passage of the Intelligence Identities Protection Act in 1982, they've shied away from naming names, concentrating instead on more general detective work, piecing together incidents and relationships to adduce U.S.-backed covert operations or disinformation campaigns. Often assembled into theme issues, ***CAIB*** articles are opinionated but based on substantial research.

The National Reporter has similar preoccupations (it used to be called ***Counterspy***), but is not as slick or as well-documented as ***CAIB***.

Germany has a history of state-sponsored domestic surveillance, and is now a major arena for East-West spy-sparring. The West German magazine ***Geheim*** (Secret) boldly spotlights this murky business. It seems especially intent on breaking the covers of American and Soviet agents (they have a "Naming Names" column almost every issue), and is very critical of its own government. (All articles in German.)

Lobster is a British newsletter on intelligence, "parapolitics" and "state research," published somewhat irregularly, with no love for British intelligence, the right wing, or international conspiracies. (Content varies quite a bit from issue to issue, so it's not easy to characterize.)

Big SISter is a little newsletter published by OASIS (Organisation to Abolish the Security Intelligence Service), which reports on domestic spying and foreign involvements of New Zealand's SIS.

The British newsletter ***Counterpoint*** and the U.S.-based ***Nightwatch*** are likewise specific in their focus: Soviet propaganda and disinformation. But where ***Counterpoint*** is analytical, trying to deduce the goals of specific propaganda projects by close study of the products (or suspected products), ***Nightwatch*** indulges in a lot more free-floating paranoia and Cold War speculation.

Military Intelligence may be the only

periodical published by an intelligence agency about their work that offers subscriptions to the public. ***MI*** occasionally has interesting articles, but its main purpose seems to be to disseminate innocuous bureaucratic news and promote careers in Army intelligence. Published by a school that trains soldiers in tactical intelligence for the battlefield, the feature articles tend either to be very general, or case-studies with parable value.

The International Journal of Intelligence and Counterintelligence reads a bit like an academic journal whose reason for existence is to help its authors inch closer to tenure. In this instance, the authors are mostly either retired from or aspiring to intelligence agency employment. We can only hope the CIA's classified journal, ***Studies in Intelligence***, is more trenchant.

Somewhat livelier, though no less academic, is ***Intelligence and National Security***, published in England. It emphasizes historical scholarship rather than current events, and while many articles concern British activities, its scope is worldwide. Not as rabidly critical as, say, ***Geheim*** or ***CAIB***, the editor nonetheless hopes "to lift some of the official veils which still pointlessly conceal the past history of intelligence."

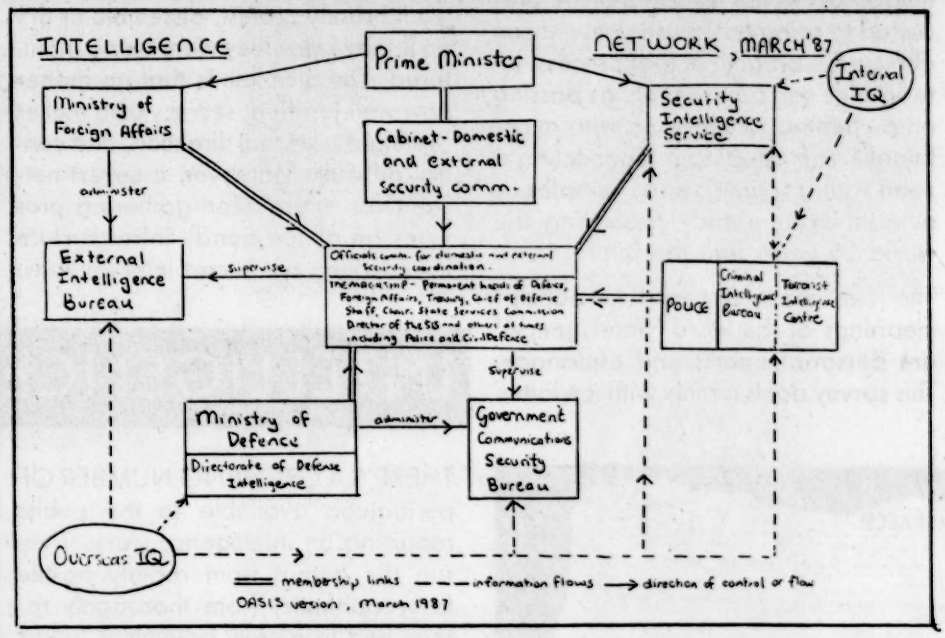
Livelier still, though much thinner, is the ***Intelligence Quarterly***, edited by Michael Speers and Rupert Allason (a.k.a. Nigel West). Mostly book reviews by writers who are themselves well-known authors in the field, it includes a set-the-fur-flying column which reviews the reviews of intelligence books in other publications — "a new art-form which might make some small contribution to keeping such reviewers more honest — or at least forcing them to read the book in question all the way through."

IQ's chief competitor is the ***Foreign Intelligence Literary Scene***, which, with a change of editorship in 1986, seems to have lost whatever independence it may have had from those running the U.S. agencies. Book reviews fill most of the page-space; there's also a regular listing of recent intelligence-related articles in the establishment press.

First Principles (reviewed in **CQ** 39:58) fights the impulse to use the legitimate need for secrecy in intelligence work to conceal illegal activities and thwart public oversight. Published by the Center for National Security Studies, an active FOIA litigator, it features "oped" type opinion essays, policy analyses, and condensed coverage of recent court cases and news articles.

The biweekly ***Access Reports/FYI*** may not be affordable by most people, but its detailed coverage of legislative activity, federal regulations and court cases concerning privacy, freedom of information, and security classification is without peer.

Last and least, we have ***Espionage***, a relatively new Guccione-backed publication. According to one of their subscription ads, it's "the only international espionage magazine in existence!" Which should give you an idea of the quality of journalism it offers. Actually, it's mainly short fiction pieces and reviews of spy novels, with rehashes of last year's newspaper spy sensations mixed in for "realism." Definitely NOT recommended. □



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In an effort to reduce anti-nuclear sentiment in the South Pacific, the USA has offered Nevada nuclear test sites to the French government several times (*Internat. Herald Tribune*, Paris, 870622). But France has always refused. The French press has mentioned the possibility that the Kerguelen or Crozet islands could be used as French nuclear test sites and that this may be why the Australian trawler *Southern Raider* was sunk by the French navy for spying in the area.

—Intelligence/Parapolitics

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Give an analyst a paper with sentences of information on it and he will immediately do three things: check it for accuracy; evaluate its place in the context of his own knowledge of its subject matter; try to exploit it for production of a finished report or study.

Now give the same paper to a field case officer. He will also do three things, but they are different. He will examine it to identify its source; attempt to intuit, learn, or guess the source's motive for promulgating it; grope for a way of using it to influence somebody, usually a prospective agent.

In other words, the analyst's habit is to react *ad causam*, the case officer's *ad hominem*. The analyst focuses on subject matter and its relevance to understanding recorded events; the field case officer, on the other hand, focuses on people and their motives.

—International Journal of Intelligence and Counterintelligence

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A Trojan Horse of sorts is slowly edging its way into the Black community in the U.S. By political and religious means, the far Right is attempting to curry Black support for its causes. Deception and misrepresentation are the main tactics being employed in this noxious endeavor. By addressing issues of concern to Blacks, such as abortion, school prayer, starvation in Africa, minority rights, and political empowerment, a number of Blacks are being duped by far-right forces into supporting causes that are diametrically opposed to their interests.

—Covert Action

Roy Innis, founder of the Congress of Racial Equality (CORE), shakes hands with Bernhard Goetz. ***—Covert Action***

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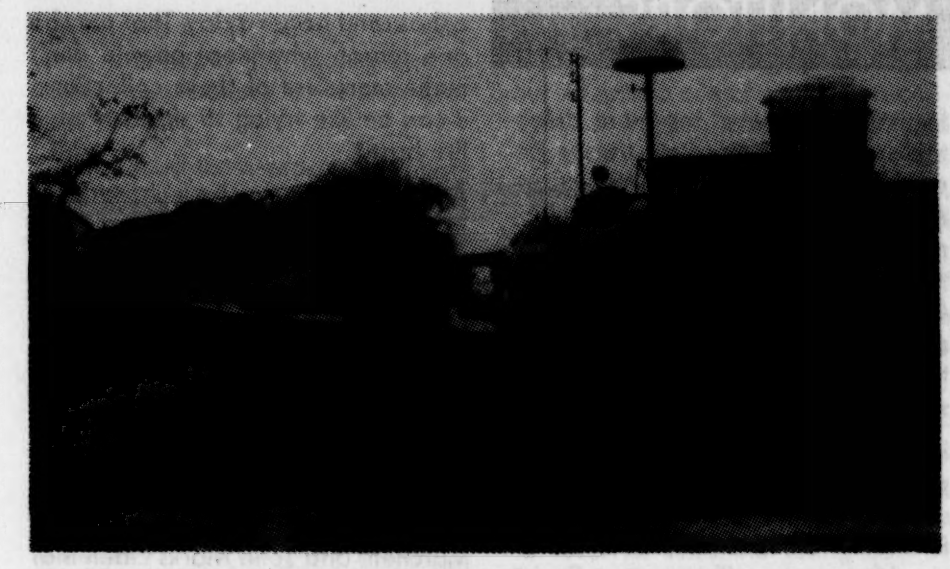
The New York Times has won an important FOIA victory against NASA, which circumscribes the limits of personal information in the wake of the



Manzione and a fellow SEAL were called upon to lead the raid on Hon Me Island — a mission that served as a trigger mechanism for a pre-planned series of events designed to provoke the North Vietnamese "attacks" in the Gulf of Tonkin.—*The National Reporter*

Supreme Court's decision in *Department of State vs. Washington Post*.

After NASA recovered the Challenger's voice recorder last year, *The Times* requested a copy of the tapes. NASA released a transcript, but refused to provide a copy of the tapes, citing Exemption 6 (invasion of privacy). The agency claimed the tapes were personal in that they were closely identified with the Challenger astronauts and that their release would invade the privacy of the families.

Without reaching the issue of the families' privacy rights, Judge Norma Holloway Johnson has ordered NASA to release the tapes, finding that they do not qualify for protection under Exemption 6. . . . —*Access Reports/FOI Newsletter*

•

Covert operations breed a disrespect for the truth. One starts out lying to the enemy, then to the public, then the Congress, then other agencies, and then to the person in the next office. One starts out lying about the essentials and then discovers how easy it is and how effective and starts lying about other aspects of the operation and then about many things. If it is okay to lie about aid to the contras, why not about arms for hostages, or an imminent invasion of Grenada? If the extent of the lie spreads inexorably, so do the targets of the lie. The need to know principle justifies lying not only to the public and to the Congress but to others in the Executive branch and even in the CIA and on the staff of the National Security Council who are not within the circle. —*First Principles*

•

Ranelagh's description of the relationship of CIA to the Carter administration is succinct, accurate, and telling — probably the best in print to date. "With a President so limited," writes Ranelagh, "the CIA had little chance of being properly used or appreciated." And CIA employees, used to a role of responsiveness to the President, learned this quickly. When Carter took office, they figuratively stood, saluted, and said — Where do we go from here? They found that President Carter, to use Ranelagh's phrase, "was a profoundly ignorant (though by no means unintelligent) American, especially in the areas of economics, international affairs, and history." Agency officers soon perceived that the President seemed to think that CIA might be out to undermine him. Ranelagh points out that during his campaign Carter had portrayed CIA as a "national disgrace." Whether or not he believed this, Carter failed to realize that the CIA, by legislation and practice, had always been loyal first and foremost to the President.
—*Foreign Intelligence Literary Scene*

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According to the authors of *Disinformation*, halting the SDI program has become the Soviet Union's top active priority of 1987. The reason for this is the Soviet perception that if they can stall the SDI now, it will die "of its own accord." Thus,

> From the Soviet point of view, 1987 . . . is a goal line stand. If they can prevent a touchdown in the next few plays, they will be at a decided advantage for some time to come.

To prevent the U.S. from "scoring," *Disinformation* believes that the Soviet active measures apparat will target two politically vulnerable institutions: the Congress, and the Atlantic Alliance. —*Nightwatch*

Access Reports/FYI: Harry Hammitt, editor. **$250**/year (24 issues) from Monitor Publishing Co., 1301 Pennsylvania Ave./Ste. 1000, Washington, D.C. 20004.

Big SISter: $5/4 issues from OASIS, Box 1666, Wellington, Aotearoa NZ.

Counterpoint: Stanislav Levchenko and Peter Deriabin, editors. **$35**/year (12 issues) from Ickham Publications Ltd., Westonhanger, Ickham, Canterbury CT3 1QN, England.

Covert Action Information Bulletin: $15/year (3 issues) from Covert Action Information Bulletin, P. O. Box 50272, Washington, D.C. 20004.

Espionage: Jackie Lewis, editor/publisher. **$21**/year (6 issues) from Leo 11 Publications, P. O. Box 1184, Teaneck, NJ 07666.

First Principles: Sally Berman, editor. **$15**/year (6 issues; $10/year for students) from Center for National Security Studies, 122 Maryland Ave. NE, Washington, D.C. 20002.

Foreign Intelligence Literary Scene: Marjorie W. Cline and David L. Thomas, editors. **$25**/year (6 issues) from National Intelligence Study Center, 1800 K Street NW, Washington, D.C. 20006.

Geheim: DM 90/year (4 issues) from: Lutticher Strasse 14, 5000 Koln 1, Federal Republic of Germany.

Intelligence and National Security: Christopher Andrew, editor. **£22**/year (3 issues) from Frank Cass & Co. Ltd., Gainsborough House, 11 Gainsborough Road, London E11 1RS, England.

Intelligence/Parapolitics: Olivier Schmidt, editor. **$25**/year (12 issues) from Association pour la Droite a l'Information, 16 rue des Ecoles, 75005 Paris, France.

Intelligence Quarterly: Michael Speers and Nigel West, editors. **$30**/year (4 issues) from Michael Speers, P. O. Box 232, Weston, VT 05161.

International Journal of Intelligence and Counterintelligence: F. Reese Brown, editor-in-chief. **$10**/issue (quarterly) from Intel Publishing Group, P. O. Box 188, Stroudsburg, PA 18360.

Lobster: Robin Ramsay, editor. **$14**/year (4 issues) from Lobster, 17C Pearson Avenue, Hull HU5 2SX, England.

Military Intelligence: Capt. William A. Purciello, editor. **$14**/year (4 issues) from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

The National Reporter: John Kelly, editor. **$13**/year (4 issues) from The National Reporter, P. O. Box 21279, Washington, D.C. 20009.

Nightwatch: free (12 issues/year) from Security and Intelligence Foundation, 1010 Vermont Avenue/Ste. 1020, Washington, D.C. 20005.

FOREIGN NEWS MONITORS

DURING WORLD WAR II, THE U.S. Government began systematically monitoring foreign radio broadcasts and news publications. The Foreign Broadcast Information Service (FBIS) and the Joint Publications Research Service (JPRS) are now run by the CIA. With thousands of print browsers, and listening posts worldwide, much of what they cull from open sources is quickly translated, sorted and republished. Since the sources are public, so is their selection. FBIS and JPRS reports are gold mines — the most concentratedly rich and diverse news sources I've ever encountered. And since your tax dollars pay for them, you can read them free at most Government Document Depositories. (There are Government Document Depositories in libraries in most major cities and universities in the U.S. All of them are open to the general public, even if housed in a library that limits admission to cardholders.)

These reports enable you to read (in English) African press coverage of the AIDS epidemic; the latest issue of *Solidarnosc;* transcripts of Iranian radio programs; news of nuclear-free-zone proposals and peace demonstrations (JPRS's coverage is probably the most extensive published anywhere); editorials about trade policy in the leading Japanese dailies; items from "Vremya," the U.S.S.R.'s evening TV news show; and a zillion other things you never even thought to look for.

Originally, FBIS monitored broadcasts and JPRS covered print media. Their domains aren't defined by the source medium any more, but rather by the time-sensitivity of the information. FBIS's through-put is rapid, so their Daily Reports are for short-shelf-life news — crises and coups, travels by heads of state, political and economic announcements, military activity, etc. FBIS is essentially an overnight translation service for news from abroad that might affect U.S. foreign policy.

JPRS doesn't move quite so quickly, but the texts they go after are relevant over a longer time period. Like FBIS, they quote from broadcasts and newspapers; more characteristically, JPRS draws material from magazines, specialized journals, books and printed ephemera: commentaries, position papers, local-color and think-pieces, analyses of current trends, scientific and technical articles. Instead of following a strict schedule as FBIS does, JPRS publications come out as source material becomes available — as often as several times per week for some serials, as seldom as once a year for others. Some of the more delectable JPRS periodicals are *Japan Report; Worldwide Reports* (Arms Control; Epidemiology; Nuclear Development & Proliferation; Telecommunications Policy, Research & Development); *U.S.S.R. Reports* (Cybernetics, Computers & Automation Technology; Military Affairs; Space Biology & Aerospace Medicine).

In addition to the serials, JPRS also publishes one-time reports based on unique documents: Vietnam's current Five-Year Plan, a cache of papers captured from a guerrilla group, a Soviet radar textbook, etc.

As wondrously vast and eclectic as JPRS and FBIS are, they do pose problems for the user. First, even though they filter and sift for the most significant items, the quantity of text they publish is still staggering — roughly a thousand pages a day. That may be one reason why more people don't make more use of these collections: it can be like trying to sip from a fire hose.

Another reason may be fear that since it is the CIA which translates and distributes the material, it could be compromised. This is a legitimate concern. One cannot ignore how easy it would be for the Agency to use these reports to publicize, suppress, alter, or even plant stories to suit their own purposes.

A more serious problem is self-deception. In *The CIA and the Cult of Intelligence* (Knopf/Dell, 1974), Victor Marchetti and John Marks claim that since the Clandestine Services are "reluctant to reveal their propaganda operations" even to FBIS editors, "texts of programs actually originating from the agency's secret stations" were "frequently" picked up and passed on to CIA, State Department and academic analysts as hard intelligence. Since

NEWS FROM ABROAD VIA RADIOTELETYPE

COVERAGE OF EVENTS outside the U.S. by the U.S. mass media is inadequate at best. Fortunately, you don't have to settle for what they offer. A shortwave radio gives you direct access to broadcasts from foreign countries, and if it's of sufficient quality, it can pick up much more than music and voice. With the proper accessories, patience, and practice, you can also use it to tune in and read news-text transmissions from foreign press agencies.

This is NOT as simple as clicking around the TV dial. There are many variables that can reduce a distant station's signal to gibberish, and you quickly see that English is a minority language. Even with the best equipment, monitoring radioteletype (RTTY) signals is a challenge, but it's also the ultimate bypass: world news, unfiltered, from a Babel of perspectives.

The major Western agencies distribute their news by wire and satellite now, but many of them also use RTTY in the shortwave band for redundancy and backup. Dozens of smaller agencies, including most that are located in less-developed countries, use RTTY as their primary means of distribution. Under the Electronic Communications Privacy Act, these channels are not illegal to monitor if they are not scrambled. If you're a news junkie, RTTY is the fastest — often the only — way to get reports straight from the Saudi News Agency, TASS, etc.

Does "teletype" conjure up an image of bulky, clacking machines churning out rolls of yellow paper in the back office? Be advised that electronics has transformed it into a medium that's quiet, compact and computer-compatible.

Any shortwave radio capable of receiving RTTY has that feature indicated on its "mode" selector. By itself, all the radio can do is detect the tones carrying the information. To convert the burbling tones into readable characters, you need one of the following:

1) An old teletype printer. This is the cheapest but least desirable option. They're getting harder to find, but you can still pick one up at a hamfest (a flea market for amateur radio operators) for $25-$75, depending on condition. Enough are still in use that, with a bit of research, you can find sources for paper, ink ribbons and replacement parts. (Parts for many mechanical teleprinters are still available from the Teleprinter Corporation, 550 Springfield Avenue, Berkeley Heights, NJ 07922; 800/526-3662 — in NJ, 201/464-5310.) However, note that not all news agencies use the same RTTY tones and data speeds; a mechanical tele-typewriter may or may not be compatible with the specific transmissions you want to receive.

2) An electronic RTTY reader. These

this assertion was made in the past tense, one hopes the Agency has resolved this problem, for its own analysts, at least.

Having read these reports regularly since 1980, my gut feeling is that one can usually count on the translation being accurate, though editorial decisions about which items to include occasionally seem arbitrary or politically influenced. Despite the opportunity to manipulate, the Agency's primary aim in these services must be to quote real sources accurately and spot potentially important developments long before they're common knowledge, regardless of how politically inconvenient they might be. This they seem to do quite well. But as with any international news service, readers of JPRS and FBIS reports outside the CIA must judge for themselves the accuracy and authenticity of particular texts.

Many local libraries, and virtually all government document depositories, get the *FBIS Daily Reports*. If you don't have free access through one of them, but do have a pile of money, subscriptions are available from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161 (703/487-4630). Published Monday-Friday, each Report series costs $125/year on microfiche, $290/year on paper. In either format there are large discounts for subscribing to more than one series at a time.

Most government document depositories get some of the JPRS publications, but only a few get all of them. If yours doesn't get the series you want to read (a complete listing can be found in *Transdex*, reviewed below), you might try to persuade them to start subscribing. Otherwise, all JPRS documents are sold through NTIS (address above), and by University Microfilms International (UMI), Old Mansfield Road, Wooster, OH 44691-9050.

Single copies and back issues can be ordered (this is not true of FBIS publications). Subscriptions to JPRS serials vary widely in price, depending on the page count and frequency of publication. Contact NTIS or UMI for particulars.

UMI also publishes thick monthly and annual indices covering all JPRS publications: *Transdex*. This directory makes it easy to look up tables of contents, specific items, keywords, authors and subjects. Because of the time needed to compile each issue, *Transdex* lags a few months behind the serials indexed, but it's absolutely indispensable and stimulating to use. Too bad the FBIS collection has nothing comparable.

Subscriptions to *Transdex* are prohibitively expensive. Fortunately, most institutions that archive JPRS publications also get *Transdex*, so if you have access to a local collection, this essential, time-saving finding aid will likely be available there, too. □

vary greatly in design, price and sophistication, from little boxes that display the text as characters shifting along a row of LEDs, to elaborate microprocessor-based units with text buffers, video displays, automatic tone-shift and speed matchers, etc. Prices range from about $200 to $900, and this is one market where you get pretty much what you pay for.

3) A computer interfaced with appropriate software. Since RTTY is similar in concept to the codes used in modem communications, with the appropriate software a personal computer can read RTTY through a moderately priced modem-like interface to a shortwave receiver. Not much "brain" is needed for this task, so rather than tie up their main machine, many monitors buy a used Vic 20 or Commodore 64 just for RTTY.

If you can solder a decent joint, you can build a simple RTTY/computer interface for under $50 (many radio magazines have published circuit diagrams). Off-the-shelf units are generally more expensive, with a "cadillac" model like the CP-100 Computer Patch interface listing for $329.95 (from Advanced Electronic Applications, Inc., P. O. Box 2160, Lynnwood, WA 98036; 206/775-7373).

Software to translate the Baudot code used in RTTY into digital code that computers understand is available free or at low cost (check ham radio-oriented magazines and computer BBSes for leads). The maker of the CP-100 offers a nice Commodore program called SWL TEXT for $99.95; able to read the Cyrillic as well as the Roman alphabet, it comes with ROM cartridge, cable, keyboard overlays and manual.

For a lively, informative, but not-very-technical overview of RTTY as transformed by modern electronics, get *RTTY Today* by Dave Ingram ($10.45 postpaid from Universal Electronics, Inc., 4555 Groves Road/Ste 13A, Columbus, OH 43232; 614/866-4605).

Press agencies change their transmission schedules and frequencies fairly often, so no published guide can be completely current. *World Press Services Frequencies*, compiled and updated every few years by Tom Harrington, covers the basic how-to's, and gives you an idea what to look for and where ($10.15 postpaid from Universal Electronics — see above).

Finally, send for a copy of *The DXers Guide to Computing*, by George Wood ($3 from Radio Sweden International, S-105 10 Stockholm, Sweden). It's an excellent collection of tips and pointers for people interested in using computers with their shortwave radios — uses like schedule/frequency databases, RTTY reading, propagation prediction, automated monitoring, etc. Beware that most computers emit quite a bit of radio noise, and can interfere with signal reception. While this is usually not an insurmountable problem, it can lead to grounding and shielding the computer, moving the antenna, or rearranging the office. □

WER reader Don Mussell (Whitesbury, KY) says of his RTTY setup: "I don't like computers much (except for the very practical pocket calculator) and never considered buying one until I saw that you can use one to check out propaganda before it's edited down for mass consumption. I already had a shortwave radio, so I spent $180 and was ready to go. I used a Vic-20 computer ($40), AEA-SWL TEXT ($85), and an MFJ-1225 interface ($60, from P. O. Box 494, Mississippi State, MS 39762) hooked up to my shortwave as shown." Don suggested some of the items mentioned in this article.

Monitoring Times

Bob Grove, editor. $15/year (12 issues) from Grove Enterprises, Inc., P. O. Box 98, Brasstown, NC 28902; 704/837-9200.

This monthly tabloid, aimed at shortwave listeners, hams, scanner enthusiasts and satellite dish owners, tells how to receive virtually any radio signal in the air. Its frequency data, international broadcasting news, and equipment reviews are much fresher than ***Popular Communications*** *(CQ #42, p. 115), which covers a similar domain. Lots more simple build-it projects, too.*

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An electronic security specialist in the Maryland area (name withheld on request) sent in his company's catalog along with a figure displaying his winning entry for the smallest antenna ever: a tiny ring around a .25 inch diameter capsule to be carried by executives or political figures who run some risk of being captured.

When swallowed, the pill-transmitter's battery activates by action of the stomach's own acid and sends a signal from this mighty-mite of an antenna which is reported to allow tracking from three to five miles away!

FIG.2. 'PILL' WITH WORLD'S SMALLEST ANTENNA.

U.S. Military Radio Communications

Michiel Schaay, editor. 1985; 259 pp. (3 volumes). $33.95 postpaid from Universal Shortwave Radio, 1280 Aida Drive, Reynoldsburg, OH 43068.

The most comprehensive, unclassified monitoring guide to U.S. military radio communications, in three softbound volumes. If trouble starts anywhere in the world, and you have a shortwave receiver, a decent antenna, and these books, there's a chance you won't have to wait until the evening news to find out what's happening.

Focusing mainly on voice and radioteletype channels, Volume 1 is organized by both region and service, covering Air Force, Army, and Navy bases worldwide. Volume 2 looks at affiliated agencies, like the Coast Guard, Federal Emergency Management Agency and NASA. A composite frequency-order list of stations starts in Volume 2 and concludes in Volume 3.

Note that in the U.S. as well as many other countries, it is legal to monitor these channels, so long as you don't divulge or economically benefit from what you hear. The military is perfectly able to protect any transmissions it needs to, and even on unscrambled channels, they make extensive use of codes and jargon to conceal content. An AWACS plane might radio to ground control, "I'm painting bogeys at 5 o'clock," when he means his radar is showing unidentified aircraft coming from the east-southeast. Such verbal camouflage is, for some people, part of the allure.

Tom Davis Books

Catalog free from P. O. Box 1107, Aptos, CA 95001.

Mail-order specialist in muckraking political and conspiracy books, many concerning intelligence agencies, bankers, royal families, Masons, organized crime, etc. All points of view, all shades of credibility. Stuff not generally found in bookstores — not even in the National Intelligence Book Center.

1970 THE WALL STREET JUNGLE Roy GROVE (Stock market manipulations on 11/22/63) U 4.95
1979 THE WARMONGERS Howard Kats BOOKS IN FOCUS (War + inflation enrich bankers) HC 14.95
1982 HEIRS OF POWER Hanover NH (The main international cartels described. Vital) HC 15.95
1983 THE WORLD'S MONEY: INTL. BANKING FROM BRETTON WOODS TO INSOLVENCY Moffitt SAS 6.95

THE SECRET GOVERNMENT 4: SECRECY, DECEPTION, AND THE NATIONAL SECURITY BUREAUCRACY

1980 THE AGE OF SURVEILLANCE: AMERICA'S POLITICAL INTELLIGENCE Donner VINTAGE LS 6.95
1986 THE CAPTIVE PUBLIC: HOW MASS OPINION PROMOTES STATE POWER Ginsberg BASIC HC 18.95
1977 CLEARING THE AIR Daniel Schorr NN (Chapters on CIA- Cuba-Mafia links) MCS 5.95
1984 DEMONSTRATION ELECTIONS: US STAGED ELECTIONS IN DOM. REP., VIETNAM, SALVADOR SR 7.95
1984 KEEPING AMERICA UNINFORMED: GOVT. SECRECY IN THE 1980'S Donna PILGRIM (Figures) 8.95
1976 THE LAWLESS STATE: THE CRIMES OF THE U.S. INTELLIGENCE AGENCIES Halperin PENGUIN 4.95
1973 THE POLITICS OF LYING: GOVERNMENT DECEPTION, SECRECY, POWER Wise VINTAGE U 3.95
1978 SPYING ON AMERICANS: POLITICAL SURVEILLANCE Theoharis TEMPLE UNIV. PR. MCS 8.95
1978 TECHNOSPYING: THE SECRET NETWORK THAT SPIES ON YOU...& YOU. Rowan PUTNAM MCS 9.95
1986 TELLING LIES: A HOW TO GUIDE FOR ALL THOSE WHO WANT TO DETECT LIES Ekman BERKLEY 3.95

THE SECRET GOVERNMENT 5: METHODS: "DIRTY TRICKS", ARMS SALES, BRIBERY, SUBVERSION, MURDER

1981 AGRICIDE: THE HIDDEN CRISIS THAT AFFECTS US ALL Fox BOCKEN (inferior food) 7.95
1980 ASSASSINATION ON EMBASSY ROW Dieges & Landau N-N (CIA financed hit squads) 5.95
1984 THE BIG CHILL: REAGAN & CONSERVATIVES ARE SUBVERTING FREE SPEECH Pell BEACON 10.95
1979 COUP D' ETAT: A PRACTICAL HANDBOOK Luttwak HARVARD (How to overthrow the govt.) 6.95
1983 DEADLY BUSINESS: SAM CUMMINGS, INTERARMS, & THE ARMS TRADE Brogan MORTON HCS 5.95

[Some unusual catalog listings:]
Applied Surveillance Photography, by Raymond P. Siljander (C. C. Thomas, 1975), 120 pp. hardback, $14.50

Find'em Fast: A Private Investigator's Workbook, by John D. McCann (Palladin, 1984), 168 pp. paperback, $12

Low Profile: How to Avoid the Privacy Invaders, by William Petrocelli (McGraw-Hill, 1982), 261 pp., $5.95

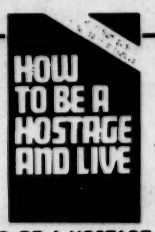
National Intelligence Book Center

Catalog $6 from N.I.B.C., 1700 K Street NW/Ste. 1007, Washington, D.C. 20006; 800/624-2232 ext. 350.

A bookstore and mail-order service for unclassified books and videotapes, apparently aimed at intelligence professionals and amateurs with a yen to know. Many manuals, case studies and histories; extensive selection of books on cryptography, investigative techniques and "comsec" (communications security). Stock is mainly from commercial publishers, but a few government documents are sprinkled in. They also buy and sell out-of-print books. Their current catalog doubles as a 115-page bibliography that's a pretty good introduction to unclassified intelligence literature, with an emphasis on anti-KGB material and "tradecraft." "Due to the hectic hours of many of our customers, the Center has a 24-hour, 7-day-a-week electronic order line at 202-797-1234."

SHADOWING AND SURVEILLANCE — A COMPLETE GUIDEBOOK by Burt Rapp. Manual for instituting or detecting surveillances: from tailing on foot, to disguises and decoys, to electronic and wireless techniques. Avoidance methods are also carefully discussed. Contents akin to some of the coursework from The Farm. 134 pp. **$9.95 PB + Shipping.**

PROTECTING YOUR BUSINESS SECRETS by Michael Saunders. Industrial espionage gains new practitioners everyday. The author outlines the techniques used by professionals and how these risks can be managed through airtight policies, protective measures, the latest equipment and, careful staffing. 128 pp **$25.00 HB + Shipping.**



HOW TO BE A HOSTAGE AND LIVE: AN IN-DEPTH GUIDE TO AVOIDANCE AND SURVIVAL by Capt Frank Bolz. Collection of points on ways to survive a hostage situation. For high-risk occupations (anyone receiving NIBC flyers) it is essential. Keep with your luggage and review before each trip abroad. It may save your life. 128 pp. **$5.95 PB + Shipping.**

PeaceNet

3228 Sacramento Street, San Francisco, CA 94115; 415/923-0900.

This computer messaging service hosts over a hundred online conferences for peace and social activist groups: the National Freeze Campaign, the Christic Institute, the Central America Resource Network, the Center for Innovative Diplomacy, Institute for Security and Cooperation in Outer Space, etc. It's worth joining not just for the news-postings and calendars of events (e.g. American Peace Test's schedule of nuclear blasts at the Nevada test site), but because participating groups often use PeaceNet to administer themselves. It's a treat to follow discussions of internal issues, goals, strategies and tactics, and most times kibitzers can add their two cents. Openness is an important principle for many of these groups; PeaceNet makes that ideal both practicable and involving. (The system has limited-access sections and electronic mail facilities, too.)

Reachable in larger cities through Telenet, after a sign-up fee of $10, the cost is $10 per month, plus $5 per hour (off-peak) and .005 cents per kilobyte for disk storage in excess of 100k. Groups get discounts.

Power Structure Research Database

4 floppy disks. **$35/$100** from Micro Associates, P. O. Box 5369, Arlington, VA 22205.

For the past ten years, Daniel Brandt has been compiling a "power structure research" database with its own easy-to-use, search-and-sort software designed to run on a microcomputer. It presently contains the names of nearly 30,000 individuals and groups identified in 55,000 citations from books and articles about the intelligence community, big business, the U.S. foreign policy establishment, domestic spying and political infiltration, assassination and conspiracy theories, and right-wing organizations.

Each name-entry is linked to as many as 50 published sources. Names associated with a foreign country at a certain time can be identified by specifying the place and time span of interest. For example, if you want a printout of all the names in the database connected with Chile from 1970 to 1973, along with citations of publications describing their activities, a few simple commands will do it.

The database is available as a set of three double-sided floppy disks, with programs on a fourth floppy. The software provides phonetic and leading-letter search capabilities for names whose spelling is uncertain. Purchasers receive update announcements every quarter, and are entitled to buy later editions at discount prices. The cost of a four-disk set is $35 for individuals and nonprofit organizations, $100 for all others. An outstanding example of political/infotech activism. Anyone curious or concerned about the web of influences operating behind the surface of democracy should have a copy. When ordering, be sure to specify the type of computer it'll run on. Versions are currently available for devices running CP/M, DOS 2.0 or 3.0.

The National Security Archive

1755 Massachusetts Avenue NW/ Ste. 500, Washington, D.C. 20036; 202/797-0882.

*Former **Washington Post** reporter Scott Armstrong's initial idea was to create a public depository for documents concerning U.S. national security, foreign policy, military and intelligence activities obtained via Freedom of Information Act requests. Acquiring documents turned out to be just the start. Most of what the National Security Archive does now is assemble and index topical collections from primary sources to provide "as complete a documentary record of recent and contemporary policy-making as possible within the constraints of security classification."*

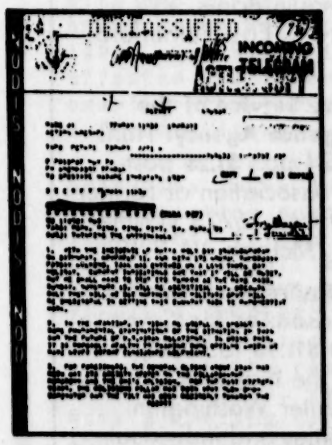
Current projects range from the history of U.S. military uses of space to the evolution of U.S. policy toward South Africa 1960-87. The Archive sells such collections and their indexes as microforms, primarily to libraries.

Search For Security

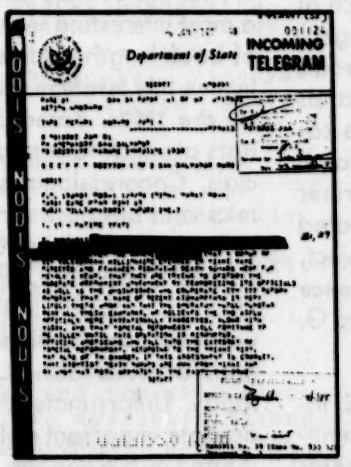
1985; 281 pp. **$45** postpaid from Access, 1755 Massachusetts Avenue NW Ste. 501, Washington, D.C. 20036.

This fat, spiral-bound guide to philanthropic support is designed to help projects on war prevention and improving national security find and get grants. Over 70 foundations are profiled, including their funding criteria, deadlines and contact addresses, plus lists of grants awarded. Also includes a survey and analysis of groups that succeeded in getting these grants. A well-done, time-saving reference. Nothing else quite like it. Compiled in 1985, the people who distribute it believe most of the information is still reliable.

*A quarterly **Journal of National Security Documentation** will publish especially significant finds, and announce new products and services.*



Secret Department of State cable, now declassified, dated November 9, 1978, from Ambassador to Iran William H. Sullivan. Nine weeks before the Shah fell, it is titled "Thinking the Unthinkable" and discusses the first registered, official concern that the Shah might not survive the growing turmoil in Iran.



Secret Department of State cable, now declassified but heavily excised, dated January 6, 1981, from the Deputy Chief of Mission in El Salvador, Jerrold Mark Dion. Titled "Millionaires' Murder Inc.?" the cable discusses his conversation with a Salvadoran official which identified "six Salvadoran millionaire emigres in Miami" as responsible for directing and financing right wing death squads and probably the murders of American citizens.

A SHORT LIST OF INTELLIGENCE BOOKS

THE OPEN LITERATURE ON COVERT intelligence is extensive, ranging from declassified documents, memoirs and exposes to histories, case studies and spy fiction. For a broad, expert survey of what's worth reading, check your library for George Constantinides' ***Intelligence and Espionage: An Analytical Bibliography*** (Westview Press).

Among the "classics," my favorite is probably ***Strategic Intelligence*** by Sherman Kent (out of print; Princeton University Press, 1949). Kent's prose is timelessly lucid, and his three-part analysis (intelligence as knowledge, as organization, as activity) is said to have influenced the development of the U.S. spy agencies. The word "strategic" in the title points the discussion toward ways to identify and acquire "knowledge which is vital for national survival." Anyone wanting to understand why nations have intelligence agencies, and how information-needs structure their activity, should read it.

The U.S. Intelligence Community by Jeffrey T. Richelson is uniquely comprehensive in its description of dozens of federal agencies, bureaus and systems presently engaging in this line of work. It is especially valuable for its sketches of lesser-known units like the National Reconnaissance Office, the Foreign Agriculture Service, and the Nuclear Detonation Detection System, as well as cooperative arrangements between the United States and its allies.

Richelson has compiled a similar study on the U.S.S.R., ***Sword and Shield: Soviet Intelligence and Security Apparatus***. This may be the best scholarly treatment available, but perhaps not surprisingly, it is less detailed and more speculative than his volume on the U.S. It's also much drier than the defectors' accounts that have provided much of what is known about the Soviet agencies. Among the latter, John Barron's ***KGB Today: The Hidden Hand*** stands out for its vivid recounting of the careers of Stanislav Levchenko, Rudolph Herrmann, and other recent former Soviet spies. For a good annotated guide to other books on this subject, see ***Bibliography on Soviet Intelligence and Security Services*** by Raymond G. Rocca and John J. Dziak.

Exposes of the seamy side of U.S. intelligence by Congressional Committees and disillusioned former agents became an important source of public information in the 1970s. Most don't concern intelligence-gathering per se, but rather clandestine acts intended to push other societies in directions favorable to U.S interests, or to suppress criticism and dissent in the United States itself.

The record compiled in 1975-6 by the Senate Select Committee on Intelligence (a.k.a. the Church committee) continues to be a milestone as the most vigorous, authoritative investigation of crimes committed by U.S. intelligence agencies in the name of national security. Purchasable copies of the testimony and reports released by the Committee are now quite rare, but they can be read at your local Government Document Depository. The most illuminating and thought-provoking of the exposes by former agents is still Philip Agee's ***Inside the Company: CIA Diary***. The naming-names aspect made this book notorious, but far more important is the demythifying insight Agee gives into the bureaucratic details of agentry, as well as the CIA's entire role in international relations. As he climbs the clandestine career ladder, moving from one Latin American country to another in the 1960s, Agee's gung-ho patriotism gradually turns to confusion, revulsion, then militant opposition. There's a deep, tragic irony in that the social assessments he learns to perform in his job eventually turn him against his employer and "American capitalism" generally.

"The Clandestine Service of the Central Intelligence Agency," by Hans Moses, offers a brief explanation/defense of covert action. Published by the Association of Former Intelligence Officers, this inexpensive pamphlet is part of a recent effort to counter the flood of harsh criticism unleashed in the 1970s. The centerpiece of this effort is a most interesting seven-volume series of book-length studies under the collective title ***Intelligence Requirements for the 1980s***. Based on topical seminars at which former intelligence officials, Congressional staffers, academics and businessmen discuss covert collection, analysis and estimates, counterintelligence, domestic spying, etc., it is probably the most in-depth, unhostile, unclassified review of the general issues facing U.S. intelligence today. Unfortunately, some volumes predate important policy changes instituted by the Reagan Administration.

Vasili V. Averyanov, a Soviet employed by the United Nations Secretariat in New York City, clears a drop in Westchester County, NY, in September, 1977. —*KGB Today*

Intelligence and Espionage: An Analytical Bibliography: George C. Constantines, 1983; 559 pp. **$71** from Westview Publishing Co., 6065 Mission Gorge Road/Ste. 425, San Diego, CA 92120.

The U.S. Intelligence Community: Jeffrey T. Richelson, 1985; 381 pp. **$16.95. Sword and Shield:** Jeffrey T. Richelson, 1986; 297 pp. **$16.95.** Both from Ballinger Publishing Co., 54 Church Street, Cambridge, MA 02138.

KGB Today: The Hidden Hand: John Barron, 1983; 257 pp. **$4.95** ($5.95 postpaid) from Berkley Books/ Order Dept., P. O. Box 506, East Rutherford, NJ 07073.

Bibliography on Soviet Intelligence and Security Services: Raymond G. Rocca and John J. Dziak, 1985; 203 pp. **$19.50** from Westview Publishing Co., 6065 Mission Gorge Road/Ste. 425, San Diego, CA 92120.

Inside the Company: CIA Diary: Philip Agee, 1975; 640 pp. OUT OF PRINT. Penguin Books, 299 Murray Hill Pkwy., East Rutherford, NJ 07073.

The Clandestine Service of the Central Intelligence Agency: Hans Moses, 1983; 24 pp. **$1.25** postpaid from the Association of Former Intelligence Officers, 6723 Whittier Ave./Ste 303A, McLean, VA 22101.

Intelligence Requirements for the 1980s: Roy Godson, editor. Seven volumes; **$7.50-$11.95** ($55/set) postpaid from the National Strategy Information Center Washington, D.C. Call for titles and individual prices: 212/838-2912. ■

Fund for Open Information and Accountability

Ever wondered if Big Brother has you in his files? Why not find out? The procedure is simple. Fill out some basic forms and mail them to the government agency of your choice. They should notify you within a month whether or not you exist in their files. If you do, they'll give you a number and you start waiting.

Right now I'm in my sixth month of waiting. The National Security Agency says they don't have me in their files, but since I'm sitting here looking at the 15 pages they sent me from an earlier FOI search I find their response a bit lame.

More interesting is the FBI response. After telling me that no new material had been added to my file since my last FOI search, they added coyly that "new references identified during our search were documents that originated with another agency." Hmm, what does that mean?

FOIA, Inc. is a volunteer crew assisting people in their uphill struggle with The State, whether you're looking for your own files, researching a book, or pressuring OSHA to release environmental records. If you're not sure where to start, try the FBI first: they're the all-purpose receptacle for subversion. If you've worked with the Sanctuary movement add Customs, Treasury and INS to your list. If you misbehaved overseas, try State and the CIA, though the latter is a reticent outfit. In general, I was alternately impressed by the depth of the agencies' information and astonished by some of their blunders.

The Fund survives on your help. They'll send you the necessary forms for $2, but if you enclosed more, it would go towards a good cause. —Dick Fugett

Southwestern Bell

SEP 19 81 DETAIL OF ITEMIZED CALLS PAGE 4 214 247 7660

NO.	DATE	TIME	PLACE CALLED		AREA	NUMBER	M	MIN	AMOUNT
1	9 06	10 52PM	EL SALVDOR		503	262 308	C	12	3.00 *
2	9 07	12 10PM	EL SALVDOR		503	253 951	A	2	1.00
3	9 07	12 18PM	CAPITOLHTS	MD	301	568 0045	B	21	5.11 *
4	9 07	1 04PM	EL SALVDOR		503	253 951	A	36	15.00
5	9 07	4 24PM	EL SALVDOR		503	253 951	A	15	15.00
6	9 07	6 13PM	EL SALVDOR		503	253 951	C	1	2.25
7	9 08	9 13PM	EL SALVDOR		503	220 063	C	7	5.25 *
8	9 10	5 51PM	EL SALVDOR		503	253 951	A	6	3.00
9	9 11	11 50AM	EL SALVDOR		503	253 951	A	1	1.00
10	9 11	1 22PM	EL SALVDOR		503	253 951	A	22	22.00
11	9 12	8 31AM	EL SALVDOR		503	253 951	A	3	1.00
12	9 12	8 35AM	EL SALVDOR		503	253 951	A	11	3.00
13	9 12	5 50PM	MIAMI	FL	305	858 4499	C	1	.25

Page of Frank Varelli's telephone bill, showing frequent calls to El Salvador National Police, as he provided names of returning Salvadoreans and visiting Americans. —*Our Right to Know*

FOIA Files Kit
$2
postpaid

Our Right to Know
(Newsletter)
Ellen Ray, Editor
$10/year (2 issues)

Both from:
FOIA, inc.
145 W. 4th Street
New York, NY 10012
212/477-3188

Stockwell Reading List

John Stockwell joined the CIA with the same gung-ho thought pattern that he'd had as a Marine Corps officer — he was fighting our nation's holy war against the Red Menace. After a tour of duty in Vietnam with the agency, he was promoted to station chief of the entire Angola operation, reporting directly to the National Security Council, much like Ollie North would do a few years later. Stockwell was thus able to observe the covert Angola operation from planning to execution, and what he saw grossed him out. So after 13 years with the agency he quit and wrote **In Search of Enemies** *(W. W. Norton), telling his own story and in the process becoming the agency's highest-ranking defector.*

Stockwell also began a personal journey of investigation with the same energy he'd given to his earlier assignments, and in the process read practically everything printed that dealt with the "other side" of the political spectrum. From this research he compiled a 50-page reading list of the best books he'd found. They cover everything from Vietnam, the CIA and cold war economics to Latin America, nuclear war and the Kennedy assassination. Each comes with a capsule review. I like to think I keep up with the literature, but Stockwell's list puts me to shame.

Stockwell's original book freaked out the CIA so thoroughly that they took him to court in the name of "national security" and creamed him. Thus it is that for every volume sold today, the author's 65¢ royalty goes to the agency, not the author. This is not the case with his reading list, so feel free to order a copy. —Dick Fugett

Selected "National Security" Reading List: $5 from WECAN, P. O. Box 1030, Elgin, TX 78621.

3. **A PEOPLES' HISTORY OF THE UNITED STATES**. by Howard Zinn, Harper Colophon 1979.

The exploitation of weaker peoples for profit didn't begin with the formation of the CIA or the Atomic Energy Commission after World War II. It began when Columbus landed in Barbados in 1492. Our histories traditionally recount events as they affected the interests of our nation and Big Business. Zinn re-examines those events in terms of the peoples' interests--quite a different story!

As a reprieve to those concerned individuals whose busy schedules leave insufficient time for extensive reading, the first section summarizes the twelve books I consider especially important. If you read them, or even only the first three (Jonathan Schell's **FATE OF THE EARTH**, Tom Gervasi's authoritative and detailed **THE MYTH OF SOVIET MILITARY SUPREMACY** and Howard Zinn's **A PEOPLES' HISTORY OF THE UNITED STATES**) you will have a good sense of the problem that now faces the American people, along with the rest of the human race. Add to those readings William Blum's, **THE CIA, A FORGOTTEN HISTORY**, and you will also have a feeling for the nature and extent of CIA destabilizations. And finally, Lloyd Dumas's, **THE OVERBURDENED ECONOMY**, shows how the arms race is breaking the United States economy.

Audio cassettes of Stockwell's lectures, and many other topics not covered in the straight media such as talks by Noam Chomsky, Desmond Tutu and the entire Christic Institute's "secret team" and Contra-drug-links suit, are available from two independent groups:

Other Americas Radio: catalog free from P. O. Box 85, Santa Barbara, CA 93102.

David Barsamian: catalog free from 1415 Dellwood, Boulder, CO 80302.

INTERSTATE 40 runs the breadth of the United States, from California to the East Coast. It connects Flagstaff, Arizona; Albuquerque, New Mexico; Amarillo, Texas; Oklahoma City; Little Rock, Arkansas; Memphis, Nashville and Oak Ridge, Tennessee; and rolls on into North Carolina, where it feeds into other interstate highways. This is the main artery of nuclear weapons transportation in the United States.

The Department of Energy (DOE) has a fleet of 44 unmarked semi-tractor-trailer trucks, 18-wheelers. They're actually high-security mobile vaults that carry nuclear weapons — up to eleven per week — and parts for nuclear arms, to and from the factories which produce them all over the United States.

The components converge at the Pantex plant in Amarillo, Texas, which is the final assembly point for all of America's H-bombs and atomic warheads. From there they're trucked to missile silo fields, naval stations, and weapons depots, where they are deployed. This traffic has been on our interstate highways for 40 years, though very few people seem to be aware of it.

Nuclear weapons convoys log about four million miles a year, passing through 48 states. They stop regularly at restaurants, gas stations and truck stops along the way. You might have been one of the thousands of people who have unknowingly sipped a coffee or eaten a Big Mac a few yards from an H-bomb.

All states have public health offices that are supposed to monitor radioactive cargo and toxic waste on the state's highways. They are not notified when the DOE trucks are in transit. Many of the states through which the trucks pass have made strenuous efforts to get that information. But the prerogatives of national security are such that transport of nuclear weapons supercedes regulation by the states.

The trucks are unmarked, to attract as little attention as possible. The DOE says this is for national security protection. Of course, it is also an easy way to conceal one of the most common and tangible manifestations of the nuclear arms race. Soviet surveillance satellites probably have no trouble identifying these convoys. The absence of markings is mainly to hide them from the American public.

In August of 1984, Sam Day, director of the national office of NukeWatch in Madison, Wisconsin, went down to the annual Pantex Peace Camp, which convenes just outside the gate of the plant around the time of the Hiroshima and Nagasaki Memorials. Sam was aware of nuclear weapons transportation, and had some pictures of the trucks. After the encampment ended, he invited some of the other participants to stay on at Pantex and watch the gates for departing con-

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Nathaniel Batchelder, 41, is a Vietnam vet with a degree in biology. Formerly a publicist with the Omniplex Science Museum in Oklahoma City, he has been a full-time lay staff member of the Benedictine Peace House since 1985. There he coordinates one of the most daring and commendable amateur intelligence operations I know of, using nothing more exotic than telephones, cars, cameras, CB radios and a network of dedicated volunteers. H-Bomb Truckwatches are co-sponsored by NukeWatch and the National Mobilization for Survival. Information kits, including vehicle identification aids, are available from The National H-Bomb Truckwatch, Benedictine Peace House, 2912 N. Robinson, Oklahoma City, OK 73103. Their hotline number for reporting sightings is 405/524-5577.

—Robert Horvitz

voys. When the spotters saw a convoy leave, heading east on Interstate 40, they telephoned us and we went out to the highway and followed it through Oklahoma City. Another convoy was followed up to Denver, Colorado. This was the beginning of the semiannual H-Bomb Truckwatch.

Since 1984, once in the fall and once in the spring, for a week at a time, volunteers go to nuclear bomb facilities around the country — to Pantex, the Y-12 plant in Oak Ridge, Tennessee, the Rocky Flats plant in Denver, Sandia Laboratories in Albuquerque, etc. They stake out the gates of the plants 24 hours a day. When a convoy leaves, a phone call is placed to the Benedictine Peace House in Oklahoma City, where, during the week of the Truckwatch, someone is always by the telephone.

From this national telephone hotline center, contacts in communities along the roads ahead of the trucks are notified that a convoy is on the way. If one was seen heading east from Amarillo on Interstate 40, we know from experience that in six or eight hours it should be in Oklahoma City. Since this is a familiar route, we would not have a car follow it all the way. We would simply contact some Oklahoma spotters to go out to the interstate and pick it up as it arrived.

If we get a report of a convoy setting out west from Amarillo, then we immediately call people in Albuquerque to let them know that it will probably reach their community in six or seven hours. We would also alert other communities farther ahead — in Flagstaff, Arizona, Barstow, California, and Las Vegas, Nevada — to let them know a convoy might be coming their way.

If a spotter sees a convoy headed into new territory, where we've not tracked one before, we try to have a vehicle stay with it until it reaches its destination.

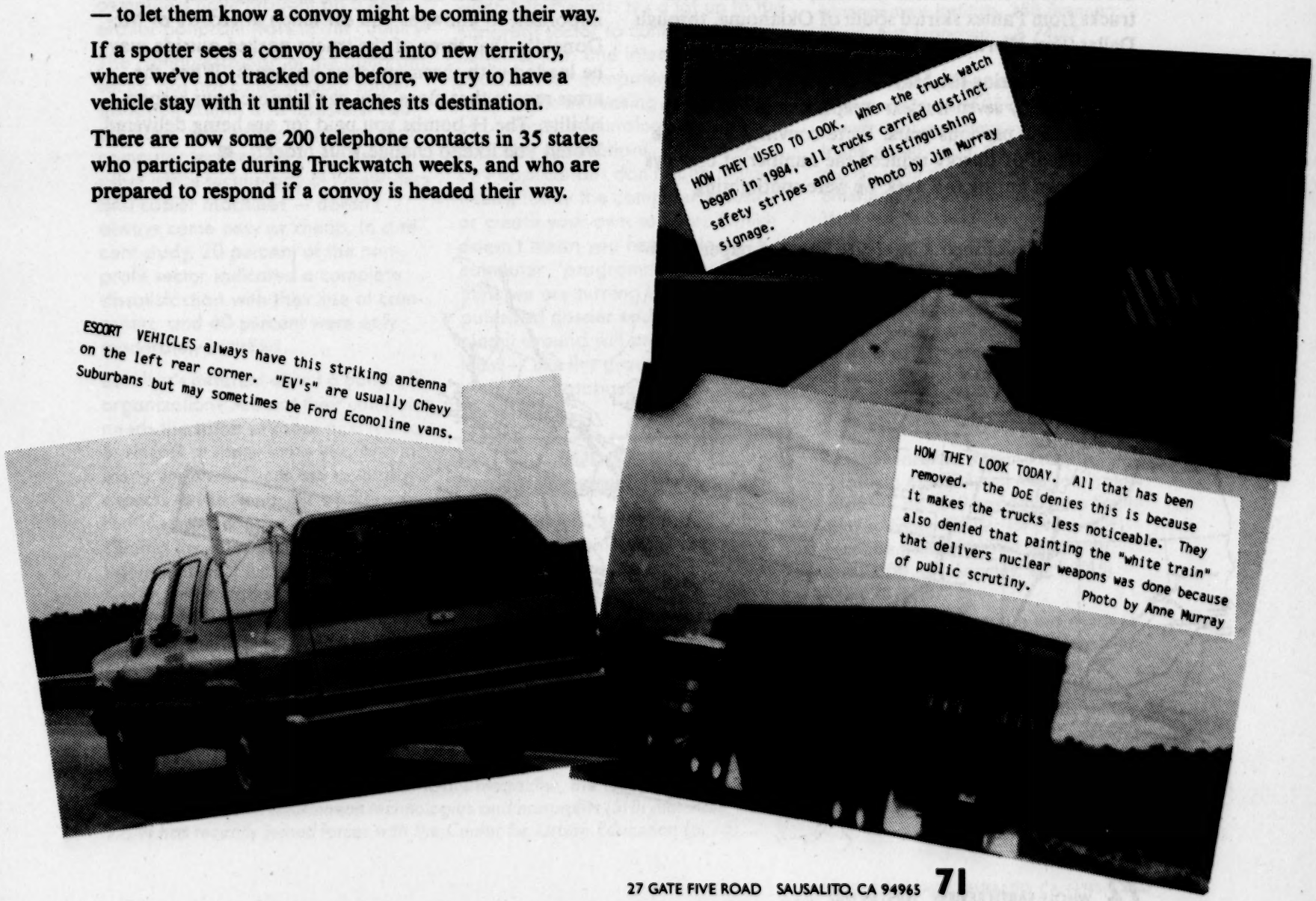
There are now some 200 telephone contacts in 35 states who participate during Truckwatch weeks, and who are prepared to respond if a convoy is headed their way.

We have followed the trucks from coast to coast. We have tracked as many as 17 convoys in one week, from different facilities around the country. Each time we have a sighting, we stick a pin in our national map. Each time we follow a convoy, we can draw a line.

Thanks to a committed group of activists, willing to get up at three a.m. and follow a truck for a hundred miles, or camp outside the gates of Rocky Flats and eat cold pizza for a week, we've been able to amass hundreds of photographs and hours of videotapes of the trucks and their guard cars passing through various communities.

While Truckwatch weeks are nationally coordinated, local groups are responsible for planning and carrying out activities on their own. Those who are prepared to go out to the highway when a convoy passes, set up a roadside vigil or demonstration, or follow the trucks, often invite the local news media to come along. Journalists participate on the basis that they not announce the event to the public before it occurs. We don't want hundreds of people to show up and create an unpredictable situation. The convoys are heavily armed (no pun intended).

So long as we do not threaten or physically impede the movement of a convoy, our activities have been looked upon as legal. We've always contacted the Department of Energy to announce the dates of the Truckwatches and advise them of our plans. They seem to want to know as much about us as they can find out. They especially want to know what we intend to do when



HOW THEY USED TO LOOK. When the truck watch began in 1984, all trucks carried distinct safety stripes and other distinguishing signage. Photo by Jim Murray

ESCORT VEHICLES always have this striking antenna on the left rear corner. "EV's" are usually Chevy Suburbans but may sometimes be Ford Econoline vans.

HOW THEY LOOK TODAY. All that has been removed. the DoE denies this is because it makes the trucks less noticeable. They also denied that painting the "white train" that delivers nuclear weapons was done because of public scrutiny. Photo by Anne Murray

Anne Murray

we're following the trucks. We've met with DOE representatives on a number of occasions, and even shared our contacts' names and addresses with them. I'm sure that some security agency has done quite a check on all of us.

DOE acknowledges that we have the right to drive on highways near their trucks, as well as the Constitutional right to express our concern about the arms race by publishing and broadcasting pictures of their convoys. But they try very hard to discourage us from following the vehicles. When we first began tracking them, they would often speed up and take evasive action, such as suddenly exiting the highway, in the hope that the tracker would not make the exit. They have sent out decoy trucks, and convoys that split apart, heading in different directions. Last May, a truck I was following released sand onto the highway from the mechanism they use for extra traction when driving on ice. The sand clattered off the highway and bounced onto my windshield. Eventually, one of the trucks and a guard car boxed me in while the other vehicles sped off. When the convoy got far enough ahead, the vehicles alongside and in front of me turned back to the Y-12 plant.

Oklahoma's location along Interstate 40 ensures that a large proportion of the DOE fleet regularly transits our state. We estimate that on average, two or three convoys cross Oklahoma per week.

However, because there were Truckwatch demonstrations in four Oklahoma cities along the interstate in 1985, no convoys have crossed through Oklahoma during the last three Truckwatches. Instead, for those weeks trucks from Pantex skirted south of Oklahoma, through Dallas/Fort Worth, and then back up to Little Rock.

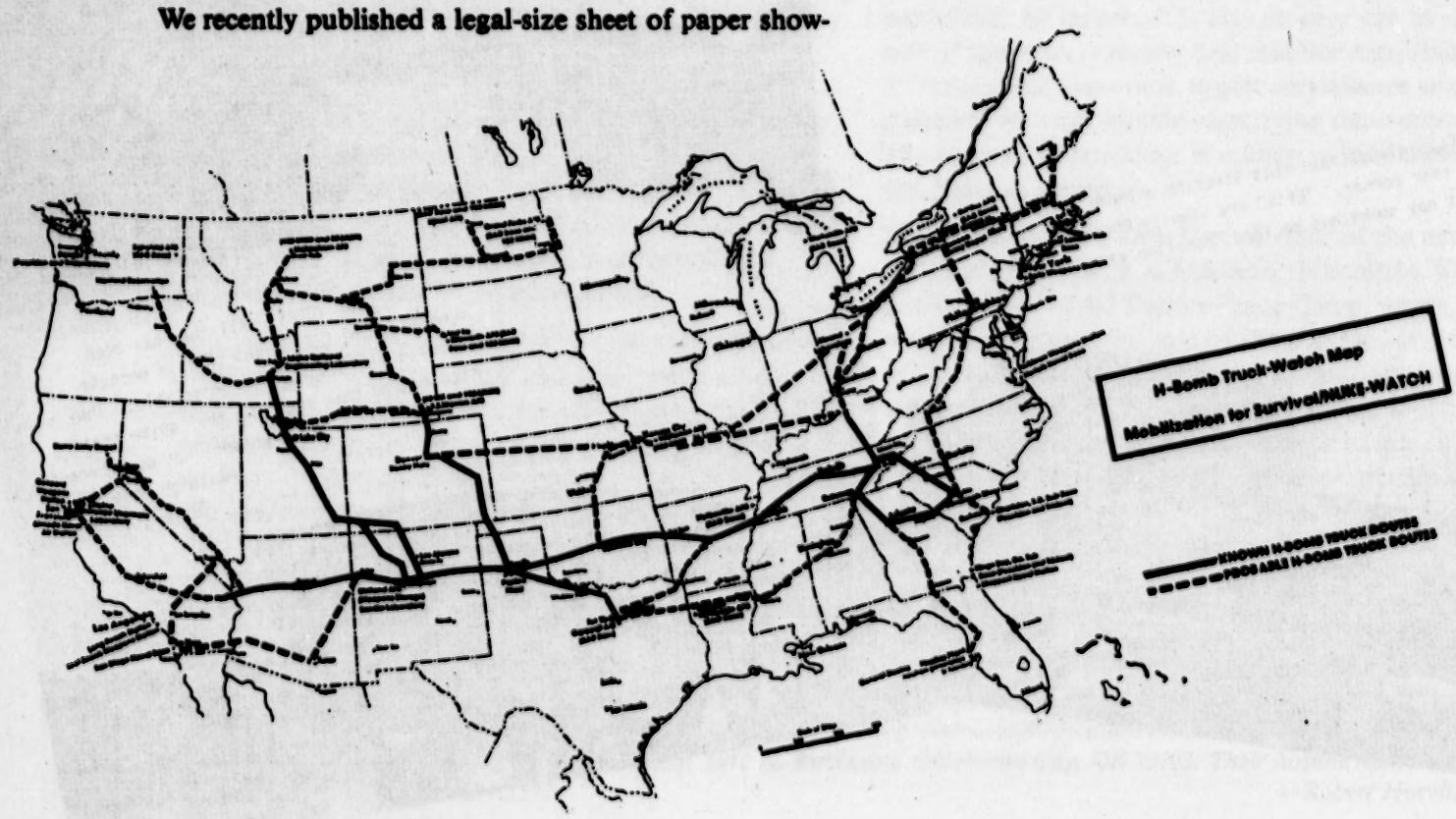
Nationally, during the May 10-17, 1987, Truckwatch, we found only seven nuclear weapons convoys, many fewer than in previous years. We're convinced that the Department of Energy reduced the number of convoys on the road during the week we were spotlighting the traffic.

We recently published a legal-size sheet of paper showing photographs of the DOE trucks and their guard cars, so people can easily recognize them. The other side of the sheet is a request for information: if you spot a convoy like this, write down the date, time of day, what highway, what direction were they headed, how many trucks, how many guard cars, what colors were they, the licence numbers, etc. The sheet asks people to phone in or mail us this information.

In this way we hope to expand the information-gathering network and keep it active throughout the year. There are a lot of people on the highway. The more that know about the nuclear bomb convoys, the more often they'll be noticed, and the more discussion there'll be about the implications.

The H-bomb Truckwatch's purpose is to call attention to the continuing arms race and the threat of nuclear destruction as a reality in daily life. The arms race seems very abstract and remote to most people. The DOE trucks bring it to virtually every state in the nation. They are, moreover, an essential part of the weapons manufacturing process. The passage of the trucks, and pictures of them in a local community, inevitably leads to questions like: how many times a month do these trucks come through here? What are they carrying? How many bombs a week pass across our state? How many were there in (say) 1980? Is the flow increasing?

As more communities learn of the passage of these convoys through their area, they realize that their roads and their truckstops are part of the bomb production cycle. This comes as startling and discomforting news for most people. As disturbing as it might be, it is important to know, as you eat lunch at HoJo's or McDonald's, that three of the trucks parked outside may be loaded with thermonuclear warheads. When the arms race is that close, you can't ignore your responsibility. The H-bombs you paid for are being delivered. Would you like to change your order? ■



COMPUTERS & NONPROFITS
EASING THE TRANSITION

BY STEVE JOHNSON

THERE ARE OVER 800,000 nonprofit organizations in this country — ranging in size from fronts for busy people with typewriters in attic offices to universities like Stanford. Self-help and other ad hoc organizations are said to number over five million. The overall budget of the nonprofit sector ($129 billion) exceeds the budget of all but nine nations of the world in dollar terms. Philanthropic organizations employed 5.6 million persons in 1980, exceeding industries such as construction and automobile manufacturing.

Five years ago fewer than 10 percent of nonprofit organizations owned computers; now it is estimated that over 50 percent of the organizations have access to small computers. Small computers have brought on a new era for nonprofit work in this country.

The computerization of the nonprofit sector has not come without some disappointments and disasters. People have learned the hard way that computer technology — unlike the other office technology of typewriters and copier machines — doesn't always come easy or cheap. In a recent study, 20 percent of the nonprofit sector indicated a complete dissatisfaction with their use of computers, and 40 percent were only moderately satisfied.

So what's different about a nonprofit organization? Are not their computer needs the same as those of a typical business? In many ways yes, and in many ways no. There are several aspects to the nonprofit workplace that demand special attention, including the reliance on volunteers, significant staff turnover and the tendency for staff to play many roles. Nonprofits write proposals. The proposals produce grants. The grants cause a kind of accounting called "fund accounting." Nonprofit organizations tend to manage people more than money. They keep track of things like donors, members, contacts, and volunteers. A business market devoted to providing "nonprofit software" has appeared to meet some of these needs. In the nonprofit sector, more than anyplace else, the drama of social issues is acted out as individuals and organizations grapple with issues about computers in the workplace, computers and the disabled, etc.

This section explores the state of nonprofit computing, the earliest stages of the automation of social change. Like a therapist in Peyton Place, I feel like I've heard it all. In the last eight years I have spent ten hours a day grappling with computerization issues, helping people learn computer application programs, and nearly going off the deep end with yet one more printer problem. I view computers as a gift, a real open-ended gift like a box of Tinkertoys. We can do anything we want with the gift. It's a lot up to the nonprofit sector to come up with humane, just, and interesting applications for computers. You can counter the increasing militarization of computer technology through peaceful applications. If the everyday applications don't quite fit your needs, lobby the computer industry, or create your own software (which doesn't mean you need to learn computer "programming"). If you think we are turning into a computerized dossier society, maybe turning it around will prove a point at least — like the group that created their own database about CIA personnel.

BUDGETING

It is estimated that a $5,000 computer investment will, in five years, represent as much as a $30,000 investment: there are many hidden costs in buying a computer, including insurance (theft, transit, medical/liability), depreciation, supplies, software, hardware and software upgrades, security, repair, and staff training.

Some other considerations with financial consequences: keeping up with the newest technology; good or bad relationships with vendors; incompatibility problems; work at home (including employees buying compatible machines for home use); what to do about benefits; workman's compensation.

To be good and careful you might want to try a needs assessment or requirement analysis. The Information Technology Resource Center in Chicago (below) has developed a good model for this with their 300+ nonprofit member organizations.

PRINT RESOURCES

Computer Resource Guide for Nonprofits (Volume I: Software Directory; Volume II: Funding Source Directory)
$95 each ($175/set) from Public Management Institute, 358 Brannan Street, San Francisco, CA 94107; 415/896-1900.*

Volume II describes computer-related giving programs of 200 corporations, foundations, and government agencies. In the introduction, the editors summarize what they consider to be the emerging trends in computer funding. Volume I describes client-services software for tracking client costs, client demographics, client history; events software, food services, job matching, library management, public housing management, and survey software. There is extensive coverage of fund accounting and membership management software.
* 4th edition available January 1988.

Computerization Needs Analysis
Elizabeth Mandell and Morgan Lyons 1986; 41 pp. $10 postpaid from Southern California Center for Nonprofit Management, 315 West 9th Street/Suite 1100, Los Angeles, CA 90015; 213/623-7080.

Provides the information one needs to conduct a needs analysis — a systematic examination of the functions an organization wishes to computerize, and the identification of needs within each function. The tangible result of

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Steve Johnson is a long-time editor at RAIN *magazine, the excellent appropriate-technology and bioregional quarterly which has a new focus on information technologies and nonprofits ($18/year from 1135 S.E. Salmon Street, Portland, OR 97214).* RAIN *has recently joined forces with the Center for Urban Education (p. 75).* —*Jeanne Carstensen*

the analysis as described in the guidebook is a list of specifications for software and hardware that may be used for obtaining bids for computer systems from vendors. One section details the overall process, and another section goes into more detail about word processing, database management, spreadsheets and accounting. Plenty of worksheets make the book more than worth the price.

The Women's Computer Literacy Handbook
Deborah L. Brecher, 1985; 254 pp. $9.95 ($11.45 postpaid) from Plume/ New American Library, P. O. Box 999, Bergenfield, NJ 07621; 201/387-0600.

This excellent handbook is an offshoot from the Women's Computer Literacy Project in San Francisco. It covers history, basic computer concepts, ethical choices, and much more. One of its strong points is Ms. Brecher's wonderful use of analogies.

[Like: a program is a recipe the computer can follow, and a computer is a cook that can follow many different recipes by doing two things well, adding and comparing. I'd recommend this book to any beginning computer user. —JC]

In addition to the shelves of mass-media computer journals, there is a growing number of specialized journals — and with desktop publishing in full swing there are likely to be many more — that cover specific areas of nonprofit computing. I always look forward to the **Computer Use in Social Services Network Newsletter**: with its reader-based contribution format one can find out about unusual and useful applications of computer technology to the social services. **RE:SET**, published by Mike McCullough, is a real gem, full of information about grass-roots and public-interest computing that you can't find out about anywhere else. Out of Los Angeles comes a small but handy newsletter for nonprofit managers: each issue of **Managing With Computers** covers a special topic such as desktop publishing, nonprofit fund accounting, etc.

CUSS Network Newsletter: $10/year from Dick Schoech, UTA, P. O. Box 19129, Arlington, TX 76019.

RE:SET: $1/issue from 90 East 7th Street/ #3A, New York, NY 10009.

Managing With Computers: $24/year (6 issues) from Lodestar Management/ Research, Inc., 1052 West 6th Street/ Suite 714, Los Angeles, CA 90017.

TECHNOLOGICAL SUPPORT

In 1983, nonprofit information technology resource centers began to appear in response to the education and technical assistance needs of nonprofits. Currently there are centers in Washington, D.C., Chicago, Los Angeles, Dallas, Portland, Oregon, and New York City. Their primary services are education, a wide range of classes, and training opportunities; access, availability of a computer-lab environment for testing and using computer equipment; and technical assistance, providing inexpensive assistance for nonprofits in purchasing equipment or further developing their computer systems.

Last year the computer centers, with assistance from the Benton Foundation and Apple Computer's Community Affairs Program, formed the Technology Resources Consortium (TRC) to promote the effective use of information technology by nonprofit organizations through the enhancement of existing centers, and by supporting the development of other programs in areas not served by the present centers. The TRC has collected vital information from each of the participating programs including training material, a skills inventory of staff and resources of the centers, and other information on the programs of each center for distribution to dozens of organizations in unserved areas. It has also developed a software evaluation process aimed at evaluating nonprofit software such as membership management, grants management, client tracking, fund accounting, etc. Most recently the TRC evaluated membership management software. The reviews have been compiled and are available from the Public Interest Computer Association for $25 (address below).

Through the TRC (c/o the Public Interest Computer Association) or the local computer centers, nonprofit organizations can find out about individuals and organizations that can help them with computer needs. Similar computer assistance programs are being formed in many cities nationwide.

Members of the Technology Resources Consortium:
Computer Help and Information Program. Southern California Center for Nonprofit

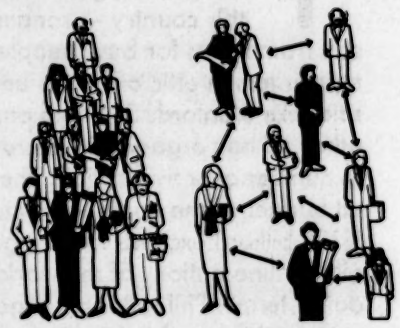
What To Look For During Automation

There may be shifts in power to those who have skills with a computer. Management or clerical staff may gain power: management by doing more of their own work (e.g. word processing, etc.), and clerical by handling more complex tasks.

New positions may be created to deal with automation, system design and maintenance. It might be a full-time role, or a role divided among several staff. One of the most significant differences between successful and failed automation is the presence of a key staff, entirely responsible for all of an organization's computerization efforts.

Organizations may also end up using more independent consultants, and more part-time staff. Some staffing needs, such as computer programming, can't be met internally and will be dealt with through contracts with consultants. Organizations will face increasingly complex questions about benefits. The management of the nonprofit organization must be flexible, able to change job descriptions creatively, and be willing and able to change staff pay scale reflecting changing responsibilities.

Decisions may become more structured, and less flexible. Decisions may also become more interdepartmental as sharing information is easier.



illustrations by Fei Yang

Training staff will take on dimensions you never dreamed possible. It's not like training to use a typewriter or copier. It will never stop. It is also important to distinguish between the need for training and for technical assistance.

There are staff anxieties to deal with, like losing data, that computers might replace jobs, that worker initiative might be lessened, client relationships might become dehumanized, that staff will have less time to deal with

clients, and the clarity of decision-making may decline.

Confidentiality and privacy are important issues. In most nonprofit organizations there is low physical security awareness. With computerization information is more finished and refined, and more mobile. Data exchange via phone or other telecommunication links is very vulnerable. By doing more information processing, less sophisticated staff can make more mistakes, thus raising the risk of inaccurate information.

Think about your office environment, the ergonomics. Workstations should include: lower than regular desk height (adjustable); adjustable chair, back support; tilt screen, adjustable brightness, etc.; detachable keyboard. The work area shouldn't have exposed cables on the floor; pay attention to reducing noise levels (especially printers); larger work area may be needed; heating and cooling requirements will change; and lighting needs for working on computers may drop to one-third of normal.

There are health issues including aches and pains, radiation, and stress. Stress may increase as staff has more workload with less job control; repetitive tasks; machine pacing of work; lack of time for training to acquire new skills; competing roles; electronic monitoring as supervision and task feedback; higher expectations versus computer delays; social isolation with main interaction being with the computer.

Documentation. One way or another we're all going to end up talking about documentation. With computers it becomes a critical function. Did you document that last bug, or will you remember that document format that worked perfectly?

Don't get caught up in thinking about computers as an end, instead of a means.

If you only go into computers to save time or money, you may get the short stick. Creativity and control are more likely ways to determine the level of computerization your organization deserves. The payback may only come as your organization develops new services or products not possible without automation.

It is important to decide what it makes sense to do internally. Just because you can do it doesn't mean you should. Do you really want staff to maintain mailing lists, or be responsible for all aspects of publishing?

Management, 315 W. 9th Street/Suite 1100, Los Angeles, CA 90015; 213/623-7080.

Information Technology Institute. Center for Urban Education, 1135 S.E. Salmon, Portland, OR 97214; 503/231-1285.

Information Technology Resource Center. 57th Street and S. Lake Shore Drive, Chicago, IL 60637; 312/684-1050.

Nonprofit Computer Exchange. 419 Park Avenue S./16th Floor, New York, NY 10016; 212/481-1799.

Public Interest Computer Association. 2001 O Street N.W., Washington, D.C. 20036; 202/775-1588.

Technology Learning Center. Center for Nonprofit Management, 2820 Swiss Avenue, Dallas, TX 75204; 214/826-3470.

The Benton Foundation

Another good source of information about how nonprofit organizations are using new electronic communication and information technology. The Foundation has supported many innovative programs and has published summaries of activities in the area: **Communicating in the '80s: New Options for the Nonprofit Community** and **Communicating Today: Serving Nonprofit Needs with Technology** ($3 each, postpaid from Benton Foundation, 1776 K Street N.W./Suite 605, Washington, D.C. 20006).

Corporate Support

Apple has done more than any other corporation to support the automation of nonprofit work. Implicit in the program's philosophy is that nonprofit organizations need to become more businesslike in order to survive and accomplish their mission, while corporations need to balance their mission to make money with social consciousness. Apple's Corporate Grants Program has eloquently accomplished both goals. There are several programs within the Corporate Grants Program: the Community Affairs Program, which provides computer grants to nonprofit organizations with an emphasis on groups working together using computer communication to build networks; the Computer Learning Center Program, which has provided support to the nonprofit computer resource centers; the Partnerships Program, which has provided computers to larger nonprofits to distribute to their constituencies, including United Way, Volunteer: The National Center, and Private Agencies Collaborating Together (PACT); and the Education Program, which provides computer grants to public and private elementary and secondary schools and to colleges and universities. The Special Education Program provides assistance to the disabled and groups which support the disabled.

Apple Computer Co., Corporate Grants Program. 20525 Mariani Avenue, Cupertino, CA 95014; 408/973-4475.

With the exception of Apple, the computer industry has not gone out of its way to provide assistance to nonprofit organizations. However, the following companies have provided some support. Write for information.

Digital Equipment Corporation, Corporate Contributions, 111 Powdermill Road, Maynard, MA 01754; 617/493-7161.

Kaypro, Dept. of Public Relations, 533 Stevens Avenue, Solana Beach, CA 92075; 619/259-4509, has been fairly generous in its support of nonprofit organizations and has a strong interest in international development uses of computers.

Lotus Corporation, The Philanthropic Committee, 55 Cambridge Parkway, Cambridge, MA 02142; 617/577-8500, has a loaned executive program and other support for nonprofit organizations (currently, Boston area only).

For more information on corporate support, see: **Computer Resource Guide for Nonprofits** (Printed Resources, above).

Nonprofit Software

If you want to find out more about nonprofit software, contact the nonprofit computer resource center in your area, get hold of one of the periodicals or books reviewed in this section, or write to one of the following:

Directory of Fund Accounting Software. Donald Will, 1984. $24.95 postpaid from Center for Local and Community Research, P. O. Box 5309, Elmwood Station, Berkeley, CA 94705; 415/654-9036.

Directory of Microcomputer Software in the Human Services. Joseph A. Doucette. $26.50 postpaid from Computer Consulting and Programming Associates, 7553 Canal Plaza, Portland, ME 04112; 207/774-8242.

Donor & Membership Software Review. $25 postpaid from Technology Resources Consortium, 2001 O Street N.W., Washington, D.C. 20036; 202/775-1588.

Guide to Software for Nonprofits. $79 postpaid from NPO Resource Review, Box A-6 Cathedral Station, New York, NY 10025.

Fund Accounting Software Review. 1031 3rd Street, Santa Rosa, CA 95405 (conducting review of fund accounting software; distributes its own package). ■

Ⓢ SHARE-RIGHT 1987

You may reproduce this material if your recipients may also reproduce it.

SOMETIME IN THE LAST YEAR OR SO, announcements like the one above were being attached to computer network messages. Unlike communication in the public domain, which anyone can use for whatever commercial purpose, share-right limits its benefits to those willing to share the bounty in the same way they received it. Users can take it only if they pass it on with the same promise. As Jack Powers, one of the network riders, says, "I like this idea of rights which travel together with the merchandise." Although share-right was born on the networks, I envision it taking root in other decentralized, highly replicating communications, like xerox publishing, or tape duplicating. Howard Rheingold, a host on The Well, calls it "a self-reproducing word virus that eats intellectual property."

As far as I know, the share-right concept first appeared at the junction of USENET and Stargate, two network systems of different politics. USENET, one of the most libertarian networks running, distributes and redistributes messages in an ad hoc style of complete non-ownership. You don't post something in USENET without expecting it to be copied all over the country, or the world. Stargate is a privately run network which beams netnews into space by hitching the messages to an unused area of information transmission in the "blink" between screens on cable TV broadcasts. It would bounce news off a satellite, down to distant pickup sites, and into local computers again. I'll let Erik Fair, a USENET engineer, tell the rest of the story:

"Stargate as originally envisioned was a cheap way to send USENET news everywhere by true broadcast. Unfortunately, the communication legalities were such that they could not claim to be a common carrier (like telephone companies), and this led directly into Stargate becoming a subscriber service instead (like a publisher). Stargate has an agreement that prohibits their subscribers from redistributing the articles they get from Stargate because, of course, it would erode Stargate's subscriber base if they did.

"Naturally, this caused a bit of a stink on the net, and the result was the copyright notices which you see on some people's articles. ("You can redistribute only if your recipients can"), preventing Stargate from transmitting those articles unless their subscribers can."

You, reader, are encouraged to duplicate this message, but only if your readers may also duplicate it.

—Kevin Kelly Ⓢ Share-right 1987

How To Look It Up Online

*There's a slippery ocean of online information services out there. We recommend that you hire Sir Alfred, the wisest old salt sailing on the sea of information, to guide you to fruit-laden islands. He knows all the shortcuts for navigating through the invisible realm of databases, what you'll find when you land, how to set your course, and how to unravel the knotty question of how much it costs. He has earned his medals (previous books of his we've recommended: **How to Buy Software**, **The Complete Handbook of Personal Computer Communications**), and is uncommonly trustworthy.* —Kevin Kelly

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"Document delivery" is the industry's term for the service of sending you a photocopy, facsimile, or actual copy of the source document from which an online abstract or bibcite was derived. It is no exaggeration to say that if you are willing to pay for it, you can obtain a copy of *anything* that is referenced online. That includes magazine articles, conference papers and proceedings, video and audio tapes, patents, complete books, chapters from books, maps, monographs, charts, architectural diagrams — if it exists anywhere in North America, you can have it in your hands tomorrow morning.

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Step 7. Set your computer to capture incoming information.

This is so important that it's worth the emphasis of making it a separate step. Generally it doesn't pay to keep your printer toggled on during an online session. Printers slow things down and thus eat up connect time. During your search you may want to dump a screen to the printer for easy reference. So leave it on and enabled, but don't toggle the printer echo on from within your communications program.

Floppy disks are cheap and erasable, however, so it definitely makes good sense to capture your entire online session. Open your capture buffer or set your communications program to dump to disk or do whatever else is necessary to put the machine in "record" mode. You can always go back into the file and delete the portions you don't want with a word processor. In addition, a record of a complete online session can be a wonderful self-teaching tool, since you can review it to see where you went wrong, the number of hits on a term that you did not follow up on, etc. If you have a hard disk, tell your system to capture to it, since less time is required to write to a hard disk than to a floppy.

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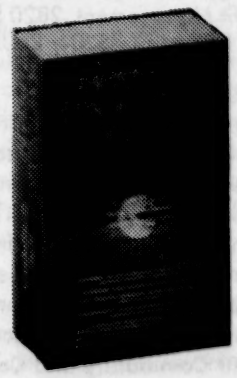
Dunn & Bradstreet credit reports may not be available from the database vendors just yet, but reports from TRW are. The TRW Business Profiles™ database is available via NewsNet, and it is remarkable in that it represents the first time business credit information has been available "on demand." TRW has been offering credit reports online since 1975, but an annual subscription fee of between $1,000 and $2,000 has usually been required.

The cost per report is $29, plus the applicable NewsNet connect-hour rate. Reports typically include 30-, 60-, and 90-day payment histories, public report data (UCC filings, tax liens, judgments, bankruptcies, etc.), and company background and business information supplied by Standard & Poor's, Trinet, and Harris Publishing.

How To Look It Up Online
Alfred Glossbrenner
1987; 486 pp.
$14.95
($16.45 postpaid) from:
St. Martin's Press
Cash Sales Dept.
175 5th Avenue
New York, NY 10010
or Whole Earth Access



The Live Wire. (415) 540-0529. 300/1200, 24 hours. A digital magazine for the graphic-arts community (printers, typesetters, self-publishers, artists). Free. Sysop: Rick Hepting.

Feminist BBS. (312) 225-9138. 8-N-1, 24 hours, 300/1200 baud. Feminism, women's issues, general talk. Sysop: Susan B. Anthony.

Bulletin Board System. BBS devoted to handicappers and racing fans in So. Cal. On line every weekend. Log-on: race data for Santa Anita, Hollywood Park and Del Mar. (213) 934-6026.

Videodrome BBS. Where computers and video meet. (213) 324-5882. Open weekdays 4 pm - 2 am, weekends 12 pm 2 am. A Commodore 64 system.

Earth-Rite RBBS. We specialize in Earth Religion and related topics. We are not a software exchange. (415) 651-9496. 24 hrs., 300/1200 baud.

Humor & Wisdom. A board dedicated to the exchange of comic relief and things to ponder in a new age of consciousness. Free, as all things should be. 300/1200 baud, (415) 937-2508.

Jukebox Bulletin Board (JBBS) (213) 670-8053. 8-N-1, 24 hours, 7 days, 300/1200 baud. Message board for buyers, sellers, and anyone interested in antique jukeboxes. Free. CP/M password available on request. No Fees. sysop: Ray Etchepare.

Secret Partner 1. (213) 543-5273. 8-N-1, 24 hour, 300/1200 baud. "Find your long-awaited sweetheart." Walter F. Howard, sysop.

The Pirate's Hollow BBS. 24 hours, 300 baud. Ye Cap'n: The Atari Pirate. (415) 593-6784.

Phoenix Info. Sports betting, football, horse racing — Bay Meadows, Golden Gate Fields. Lotto and stocks coming later. Starting weekends while increasing days as interest grows. One ring and call back to get on. (408) 270-2661. Sysop: Jim Finnell.

THE BULLETIN BOARD PROLETARIAT

The Dead Board (717) 677-9573, 24 hrs., 8 bit word, 1 stop bit, no parity, 300/1200 baud. Grateful Dead tape trading and info; space for bulletins, ads and public mail.

Cold Moon On A Single Star. (415) 668-6101, San Francisco. 24 hours, Fido board. Chinese culture, history, language, Chinese cooking, discussion, etc. Asian community events. Sysops: Joseph Puig and Susan Chen.

Musician's Network BBS. Musician's information exchange. Space for want ads, bulletins, and public mail. Uploading and downloading available. BBS operates on Fido Software. 8 bits, no parity, 1 stop. Weekends only, 6pm Fri-6am Mon. (415) 893-1618. Sysop: Erik E. Hayles.

Lynzie's Motherboard (818) 508-6482/(213) 650-0519. 24 hours, 300/1200/2400 baud, 8-N-1. Private E-mail, download library, dating matchup, interactive chat between users, 4 phone lines on rotary. Public boards include emkployment, food and restaurant reviews, sci-fi, political, debate, for sale and many more. Monthly social happenings for local users. Sysop: Lynzie Flynn.

The Shark's Head BBS Something for everyone, from serious to ridiculous. No-fee, membership system. We're not only user friendly, we're friendly users. Member SVSE. Dusty & Candy Van, (408) 247-4810.

Photobytes, a photography oriented BBS, features product information, help files, photo contest listings, plus much more. Sponsored by Wentling Camera Shops. 300 baud, (415) 439-2515, 24 hrs. 7 days.

Dial-Your-Match#1. (818) 842-6900. 24 hours, 7 days, 300/1200 baud. Meet new friends! The original and most unique friendship BBS. Online since October 1981. DYM network allows you to send messages across the USA.

Vietnam Vets-The LooneyBin. Nancy and Todd Looney, sysops. Dedicated to 'Nam vets, their wives, lovers, and friends. Good friendly conversation plus referrals and counseling. Online 23 hours 3/12/2400. (408) 293-7894. FidoNet #143/27.

Uncle Tim's Hot Tub BBS. (916) 689-4670. 8-N-1, 300/1200 baud, 24 hours. A clothing optional experience coming live from Almost-Elk-Grove, California. Features: Main Hot Tub, Amiga Tub, Naturism/Nudism Tub, C Language Tub, Politic Tub, Tasteless Tub and Othe Boards Tubs. No fees. Syste is as open as the software w allow. Registration unnecessa but nice. We're new and gro ing! Give us a call, we'd love hear from you! Sysop: Un Tim Beckwith.

A VOLUNTEER PROLETARIAT MAINTAINS ONE OF the most invisible communication undergrounds going. Linked by phone lines, a web of computer bulletin board systems (BBSs) work night-duty collating messages and electronic mail for free. Regulars patronize small-time BBSs because they can feast on immediate gossip about very specialized subjects. Name a topic and there is almost certainly a BBS dedicated to it somewhere.

To get onto a BBS, you dial a phone number with your computer, and after reading the welcome message, you follow a menu of choices until you arrive at a topic you like. You can then read messages left by others (the bulletin board aspect) and post some of your own by typing them in. The result is a public answering machine, on which anyone can read all messages. Comments are served to you intelligently so that you read only the ones posted since you last checked in, no matter how long that's been. If you've been gone two weeks, you read two weeks' worth, and then you're caught up to the center of what is being said. It'll seem to the other callers that you were there all along, keeping quiet. The sum is a collective conversation that continues for weeks or months, and which happens at your convenience. In theory they stick to one topic. In practice there's enough continuity to keep it informative, and enough diversity to keep it alive.

Any old computer will let you in. You fit it out with a telephone adapter, called a modem (about $100), and plug it into the phone jack. You'll find listings of public BBSs in the back of Computer Shopper *($18/year from Patch Publishing, P.O. Box F, Titusville, FL 32781), in regional tabloids like California's* Computer Currents *and* Microtimes, *and at user-group meetings. Once you find one, it'll lead you to many others, board hopping as long-distance as you care to. Pirate boards, the truly underground BBSs where teenage hackers boast of their exploits, appear and disappear so fast they can only be found by hopping.*

Propelling much of the drive in regular use of BBSs is the superhighway of PC Pursuit (800/336-0437). Run by Telenet, PC Pursuit lets anyone call BBSs located in most cities for a flat $25-per-month fee, unlimited time, as long as it's in the evening. Without PC Pursuit many notable BBSs would be out of reach for half the country.

No one knows exactly how many bulletin board systems there are. The best guess is that there are about 7,000 operating at one particular time. They come and go with the irregularity of phone line static. Immensely easy to start, a BBS usually becomes a hassle to maintain over the long stretch. While it's up and running, though, it's promoting a new brand of conversation. BBS sysops (system operators) keep them going because of the unsurpassed advantages of having people from all over the country calling in at their own expense to post amazing messages on the very subject one cares about.

BBSs are a gathering medium, not a broadcasting channel. The ones that work sculpt a comfortable visiting space to welcome comments. Dave Hughes, the pioneer telecommunications visionary, says the acid test for a BBS is if it averages one posted message for every two calls in. Any fewer messages and it will fade rapidly.

To start your own home-based BBS, you'll need a computer, modem, and one of these recommended software packages. For the Apple, we suggest GBBS. It's easy to set up in less than an hour, takes customized modifications superbly, and tends to be crash-proof. Consensus in the Macintosh world is that Red Ryder Host is the ticket for a home-based Mac BBS. Since it doesn't matter too much what computer you use, the most efficient way is to run your BBS on an IBM clone. The choice for IBM and compatible is TBBS. It's programmable by amateurs, and has been around a long time. There are two flavors. Single phone line (about $300). Multiline, which will take up to eight phone lines ($895), and mail to the free-forwarding FIDO service linking up BBSs at night ($100). With both FIDO mail and 8 lines in, a souped-up BBS approaches the capabilities of a local teleconferencing system like the WELL. In fact, having both public and private access to your personal answering machine is the innovation brewing here. A BBS may be part of the household furniture someday. — *Kevin Kelly*

TBBS: Version 2.0. For IBM and compatibles; needs 384K and hard disk. Copy-protected. **$300** for single line, **$895** for multiline, **$100** for FIDO mail; from eSoft, 4100 South Parker Road/Box 305, Aurora, CO 80014; 303/699-6565.

GBBS: Version 1.3. For Apple family; needs two drives. Not copy-protected. **$128** postpaid from L & L Productions, P. O. Box 5354, Avada, CO 80005; 303/420-3156.

Red Ryder Host: Version 1.4. For Macintosh; needs 512K. Not copy-protected. **$60** postpaid from FreeSoft, 150 Hickory Drive, Beaver Falls, PA 15010; 412/846-2700. ■

Virtual Communities

by Howard Rheingold

illustrations by B. S. Beaver

New communities of physically remote people are forming in the copper and optic cables that wrap around the globe. Ideas are exchanged; business is executed; information is passed; and, sometimes, relationships develop: online friendships. All through words on screens.

Freelance writer Howard Rheingold is particularly qualified to write this article. He doesn't just work on computer networks, he dwells there. Log onto The WELL (415/332-6106) and meet him as host of several conferences and all-around participant. He's a nice guy.
—Jeanne Carstensen

BECAUSE I am a writer, I used to spend my days alone in my room with my typewriter, my words, and my thoughts. On occasion, I ventured outside to interview people or to find information. After work, I would reenter the human community, via my neighborhood, my family, my circle of personal and professional acquaintances. But I was isolated and lonely during the working day, and my work did not provide any opportunity to expand my circle of friends and colleagues.

For the past two years, however, I have participated in a wide-ranging, intellectually stimulating, professionally rewarding, and often intensely emotional exchange with dozens of new friends and hundreds of colleagues. And I still spend my days in a room, physically isolated. My mind, however, is linked with a worldwide collection of like-minded (and not-so-like-minded) souls: My virtual community. If you get a computer and a modem, you can join us.

A virtual community is a group of people who may or may not meet one another face to face, and who exchange words and ideas through the mediation of computer bulletin boards and networks. Like any other community, it is also a collection of people who adhere to a certain (loose) social contract, and who share certain (eclectic) interests. It usually has a geographically local focus, and often has a connection to a much wider domain. The local focus of my virtual community, The Whole Earth 'Lectronic Link (aka "The WELL") is the San Francisco Bay Area; the wider locus consists of tens of thousands of other sites around the world, and hundreds of thousands of other communitarians, linked via exchanges of messages into a meta-community known as the Usenet.

The existence of computer-linked communities was predicted twenty years ago by J.C.R. Licklider, who set in motion the research that resulted in the creation of the first such community, the ARPAnet: "What will on-line interactive communities be like?" Licklider wrote, in 1968: "In most fields they will consist of geographically separated members, sometimes grouped in small clusters and sometimes working individually. They will be communities not of common location, but of common interest . . . " My friends and I are part of the future that Licklider dreamed about, and we can attest to the truth of his prediction that "life will be happier for the on-line individual because the people with whom one interacts most strongly will be selected more by commonality of interests and goals than by accidents of proximity."

I work with a computer now, instead of a typewriter, so it is easy for me to drop into my electronic watering hole without leaving my chair. My community is both a sacred place, in the sense that I visit it for the sheer pleasure of communicating with my new-found friends, and a practical instrument in the sense that I use

it to scan and gather information on subjects that are of momentary or enduring importance, from childcare to neuroscience, technical questions on telecommunications to arguments on philosophical, political, or spiritual subjects. It's a bit like a neighborhood pub or coffee shop: I don't have to move from my desk, there's a certain sense of place to it. It's a little like a salon, where I can participate in a hundred ongoing conversations with people who don't care what I look like or sound like, but who do care how I think and communicate. And it's a little like a group mind, where questions are answered, support is given, inspiration is provided, by people I may have never heard from before, and whom I may never meet face to face.

Virtual communities have several advantages over the old-fashioned communities of place and profession. Because we cannot see one another, we are unable to form prejudices about others before we read what they have to say: Race, gender, age, national origin and physical appearance are not apparent unless a person wants to make such characteristics public. People whose physical handicaps make it difficult to form new friendships find that virtual communities treat them as they always wanted to be treated — as transmitters of ideas and feeling beings, not carnal vessels with a certain appearance and way of walking and talking (or not walking and not talking). Don't mistake filtration of appearances for dehumanization: words on a screen are quite capable of moving one to laughter or tears, of evoking anger or compassion, of creating a community from a collection of strangers.

In traditional kinds of communities, we are accustomed to meeting people, then getting to know them. In virtual communities, you can get to know people and then choose to meet them. In some cases, you can get to know people whom you might never meet on the physical plane. In the traditional community, we search through our pool of neighbors and professional colleagues, of acquaintances and acquaintances of acquaintances, in order to find people who share our values and interests. We then exchange information about one another, share and debate our mutual interests, and sometimes we become friends.

In a virtual community we can go directly to the place where our particular interests are being discussed, then get acquainted with those who share our passions. In this sense, the topic is the address: You can't simply pick up a phone and ask to be connected with someone who wants to talk about Islamic art or California wine, or someone with a three-year-old daughter or a 30-year-old Hudson; you can, however, join a computer conference on any of those topics, then open a public or private correspondence with the previously unknown people you find in that conference. You will find that your chances of making friends are magnified by orders of magnitude over the old methods of finding a peer group.

"Online interactive communities will be communities not of common location, but of common interest."
—J. C. R. Licklider

Virtual communities can help their members cope with information overload. The problem with the information age, especially for students and knowledge workers who spend their time immersed in the info-flow, is that there is too much information available and no effective filters for sifting the key data that are useful and interesting to us as individuals. Dreamers in the Artificial Intelligence research community are trying to evolve "software agents" that can seek and sift, filter and find, and save us from the awful feeling one gets when it turns out that the specific knowledge one needs is buried in 15,000 pages of related information. In my virtual community, we don't have software agents (because they don't exist yet), but we do have informal social contracts that allow us to act as software agents for one another. If, in my wanderings through information space, I come across items that don't interest me but which I know one of my group of online friends appreciate, I send the appropriate friend a pointer to the key datum or discussion.

This social contract requires one to give something, and enables one to receive something. I have to keep my friends in mind and send them pointers instead of throwing my informational discards into the virtual scrap-heap. It doesn't take a great deal of energy to do that, since I have to sift that information anyway in order to find the knowledge I seek for my own purposes. And with twenty other people who have an eye out for my interests while they explore sectors of the information space that I normally wouldn't frequent, I find that the help I receive far outweighs the energy I expend helping others: A perfect fit of altruism and self-interest. For example, I was invited to join a panel of experts who advise the U.S. Congress Office of Technology Assessment. The subject of the assessment is "Communication Systems for an Information Age." Before I went to Washington for my first panel meeting, I opened a conference in The WELL and invited assorted information-freaks, technophiles, and communication experts to help me come up with something to say.

By the time I sat down with the captains of industry, government advisers, and academic experts at the panel table, I had over 200 pages of expert advice from my own panel. I wouldn't have been able to garner that much knowledge of my subject in an entire academic or industrial career, and it took me (and my virtual community) six weeks. The same strategy can be applied to an infinite domain of problem areas, from literary criticism to software evaluation.

Virtual communities have several drawbacks in comparison to face-to-face communication, and these disadvantages must be kept in mind if you are to make use of the advantages of these computer-mediated discussions. The filtration factor that prevents one from knowing the race or age of a participant also prevents people from communicating the facial expressions, body language, and tone of voice that constitute the "invisible" but vital component of most face-to-face communications. Irony, sarcasm, compassion, and other subtle but all-important nuances that aren't conveyed in words alone are lost when all you can see of a person is a set of words on a screen. This lack-of-commu-

nication bandwidth can lead to misunderstandings, and is one of the reasons that "flames" or heated diatribes that normally wouldn't crop up often in normal discourse seem to appear with relative frequency in computer conferences.

Other disadvantages stem from the asynchronous and one-to-many nature of online communications. When you talk to somebody on the phone, you know your audience is getting your message right then and there. Electronic mail eliminates telephone tag, but adds a degree of uncertainty. When you send someone electronic mail you are never sure when your intended audience will get your message, and when you post a response in a computer conference, you are never sure who is going to get the message. Another advantage that can turn into a disadvantage is the unpredictability of responses: it is refreshing and fun to find all the unexpected angles and digressions people can come up with in response to a question or statement; it is frustrating when the specific you seek is lost in "item drift."

The way to build a virtual community, and to use it effectively, is to spend time to make time. At the beginning there are unknown commands to learn, and new procedures and customs to absorb. This is the steep part of the learning curve, and many people simply give up, because computer conferencing is not as simple as picking up a telephone or addressing a letter. It can be much more rewarding, however, and there are always people willing to help, which leads to the key advice for building and using a virtual community: don't be afraid to ask questions, and don't hesitate to answer questions. Once you learn your way around, don't be afraid to pose new topics of discussion: plant informational seeds and watch discussions grow around them, and study the ways knowledge emerges from discourse. Use pointers to data or discussions that might interest others — send them and ask for them. Use all the communication tools available to your community: private electronic mail for one-to-one communications and for making arrangements to meet people face-to-face, public computer conferences for one-to-many questions and discussions, planfiles and biographies (your own and others) can help you and your community discover what kind of person you are and where your interests lie; and don't forget that telephones and face to face meetings are still appropriate ways to cement and extend the friendships you make online. ■

Information Highways

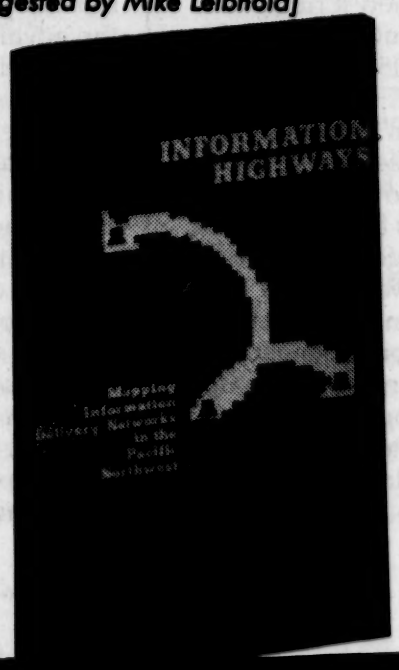
We know shamefully little about the nature of information. Try to buy a map that shows how information flows in all its varieties around the world. Bet you won't find one.

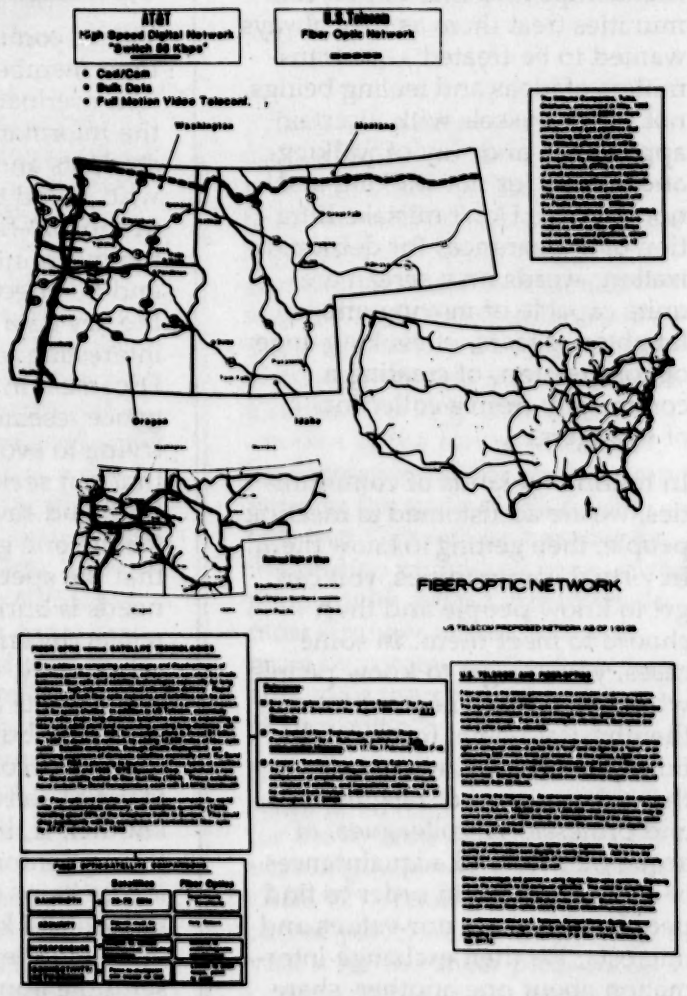
One small corner has been done. Compiled by astute librarians in Oregon, this self-published monograph traces the regional information paths in the Pacific Northwest. The overlapping networks of electronic, transportation, and paper information delivery routes are collated into an atlas of communications. Wisely, the writers include airlines and overnight couriers as communication channels. Emphasis is given to the remarkable freeways of interlibrary loans. (Libraries pass books among themselves, so that patrons can borrow books that a small branch doesn't have on its shelf. In effect you can get nearly any book you want, if you're willing to wait for it.) The larger theme of the book is the cartography of intangibles.

—Kevin Kelly

[Suggested by Mike Leibhold]

Information Highways
Lawrence E. Murr,
James B. Williams
and Ruth-Ellen Miller
1985; 78 pp.
$25
postpaid from:
Hypermap/LIRN
P. O. Box 23452
Portland, OR 97223
503/241-2212





The Media Lab

As we speak, the once-separate galaxies of computers, publishing, and broadcasting are melding into each other with a great deal of muttering, armwaving, and hustling of new hardware. At the confluence is MIT's radical technology department, the Media Lab, which is betting multimillions that it can steer the collision into a cohesive whole: perhaps a mega-combo of telephone/video/audio/simulation/newspaper that is uniquely tailored to each individual. The goal, as the Media Lab sees it, is to let the audience take over. At stake is the major source of wealth in the future — entertainment/news.

Sounds like an exciting place to visit. Trouble is, the Media Lab's work is spread vexingly thin since its range is so wide. When I was there I came away with unfocused glimmers of vague, half-understood somethings. Stewart Brand, publisher emeritus of **WER**, *spent a year hanging out there, writing the ultimate tour of the Lab that everyone would like, but can never get. As you might expect from Stewart, there is a meta-level to the book: the media laboratory that our world has become. He envisions supremely individualized connections with appliances that would "know the user so intimately that the dialogue between machine and human would bring about ideas unrealizable by either partner alone." Stewart's astute and rigorously researched insights are the only aerial view of this uncertain landscape so far. I view the book as philosophical documentation for the practical examples paraded in this issue.* —*Kevin Kelly*

•

Students and professors at the Media Laboratory write papers and books and publish them, but the byword in this grove of academe is not "Publish or Perish." In Lab parlance it's "Demo or Die" — make the case for your idea with an unfaked performance of it working at least once, or let somebody else at the equipment.

•

Want to know where the action in a culture is? Watch where new language is turning up and where the lawyers collect, usually in that sequence.

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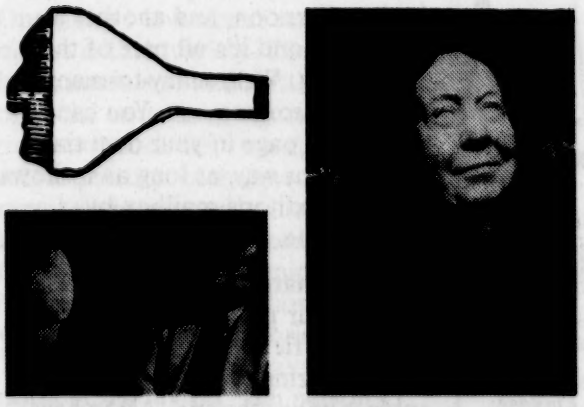
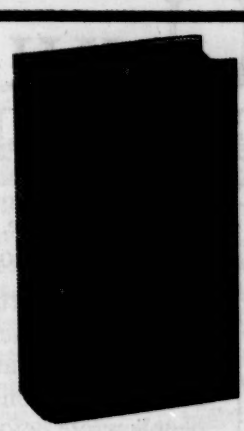
Me: "Do you have a standard timeline for when machine intelligence catches up with human intelligence and goes rolling on past?"

Minsky: "Yeah. Between 100 and 300 years. Intelligent evolution is unprecedented. Nobody's ever seen one. So in a few hundred years it could do trillions of years of ordinary slow evolution." Me: "And make enormous mistakes." Minsky: "That's the trouble. There's no time to iron out the bugs. It might fill up the universe with



The original "Talking Head," circa 1979, had gimbals to replicate head movement. It would enable five people, in widely separated locations, to meet around a highly intimate "virtual" conference table. At each of the five locations there would be one real person and four video faces representing real people, glancing at each other, nodding or shaking their head, able to converse with a high degree of nuance.

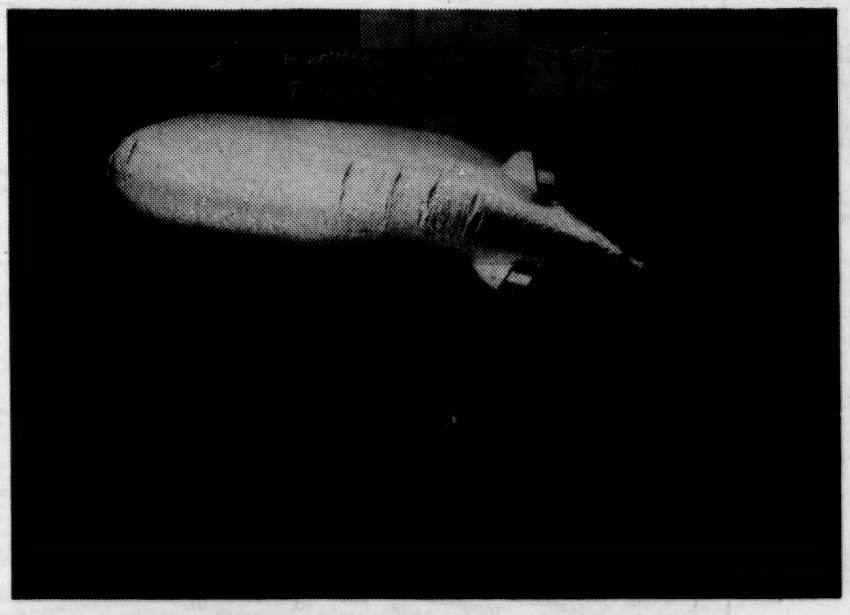


The Media Lab
(Inventing the Future at MIT)
Stewart Brand
1987; 285 pp.
$20
($22 postpaid) from:
Viking Penguin Books, Inc.
299 Murray Hill Parkway
E. Rutherford, NJ 07073
800/631-3577
or Whole Earth Access

styrofoam or something because it had some wrong theory about how the cosmos needs a shock absorber." Suddenly I saw a Vivarium as a swell place to work out some of those problems, rather than in the world.

•

If, as alleged, the only real freedom of the press is to own one, the fullest realization of the First Amendment is being accomplished by technology, not politics.



The first creatures created for the Vivarium were radio- and computer-controlled blimps that pretended to be fish, swimming around in the Media Lab's atrium. The blimps had rudimentary sensors that helped them orient in relation to walls, each other, and "food" (electricity). With the help of some blue light a classroom was spectacularly transformed into an ocean where child and "fish" became collaborators in a shared experiment.

•

While computers probe and imitate the "society of mind," they are also shaping the mind of society. Computers and communications have already blended so far that they are one activity, still without a verb to express what it does. We don't even have a word for the nervous activity in the body — it's not "thinking," "sensing," or "talking." All the chemical and energy activities in a body (or a society) have a word for their sum action — "metabolism" — but there's no equivalent word for the sum of communications in a system. The lack of a word signals a deeper ignorance. We don't know what constitutes healthy communications.

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When I mentioned to Jerome Wiesner that I was shifting my work environment from one kind of personal computer to another, he commiserated, "I think that nobody should have to learn a new machine after the age of twenty-seven." It's not just what you have to learn, it's what you have to teach the machine. More powerful machines require more teaching. That's something the Media Lab would like to reverse: more powerful machines should be able to learn from you on their own.

A Conferencing System Without Computers

UNHURRIED COMMUNICATION

By Ann Weiser

DISCUSSION GROUPS that meet by mail are a cheap, accessible means of group communication. They're computer conferences without the computer, available for the price of a postage stamp. We call them many-to-manys.

The simple recipe goes like this: a many-to-many usually has from twenty to fifty members. One person is the "Organizing Editor." By a given deadline, each person writes a letter about the same topic and sends it to the editor. The editor adds his/her own letter and a cover page listing the members and setting the next deadline, copies the letters, and sends a set to each member.

Now comes the fun part: by the next deadline, each member writes another letter that includes comments and responses to the letters people wrote before. So it becomes an ongoing, participatory, interactive group conversation by mail. And each person appears in their own typeface — even in their own handwriting if they want — because the pages are copied as is, no editing. It's easy to add pictures, sketches, diagrams.

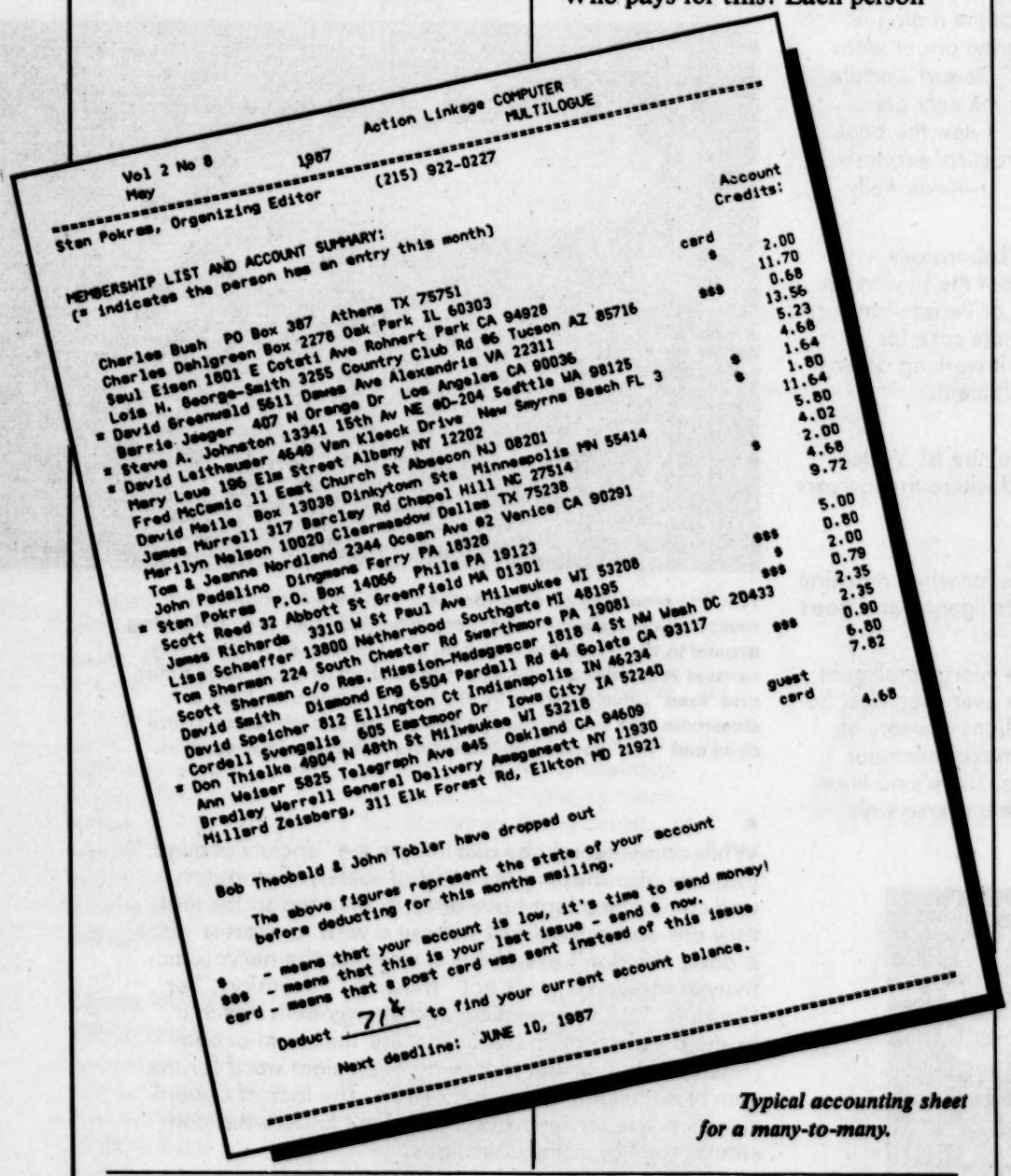
Who pays for this? Each person sends the editor a deposit, usually $5 at a time, to be used for their own postage and copying costs. The editor keeps track of the money and lets the participants know when they need to send more. Depending on the number of people who write each time, and how cheaply the editor can get copying done where he or she lives, many-to-manys can range in cost from 50¢ to $1.50 per person per issue. A lot cheaper than computer conferences!

But other than cost, how do many-to-manys compare with computer conferencing? We've found that a lot of people still don't have computers, or if they have computers they don't have modems. If even one person in a group doesn't have a modem, that group can't communicate by computer. But it *can* communicate by many-to-many.

Other advantages of a many-to-many compared to a computer: it's easier to send "right brain stuff": pictures, diagrams, sketches, handwriting. Not everyone's page looks alike. You can even pick up a sense of personality from typewriter styles!

Also, there are advantages (and disadvantages) to the monthly rhythm of a many-to-many. A computer conference is continuous. Any time you look there may be more of it. But a many-to-many has one deadline that everybody writes by. Then you get one packet in the mail and that's all of it for the month. You can hold it in your hand, get a feel of the whole of it, respond to that wholeness. ("The June pages felt very interconnected.") Computer conferences are praised for being asynchronous: one person can write in the afternoon, and another at 3:00 A.M., and it's all part of the same thing. Well, many-to-manys are asynchronous, too. You can write your page in your own time, in your own way, as long as it shows up in the editor's mailbox by the deadline.

Many-to-manys grew out of APAs, the amateur press associations used by science fiction fans to trade amateur magazines and discuss every subject under the sun. APAs have Organizing Editors or OEs, and members publish their own amateur magazines (called "apazines") and send a given number to the OE for distribution in a "mailing."



Vol 2 No 8 May 1987 — Action Linkage COMPUTER MULTILOGUE

Stan Pokras, Organizing Editor (215) 922-0227

MEMBERSHIP LIST AND ACCOUNT SUMMARY:
(* indicates the person has an entry this month)

		Account Credits:
Charles Bush PO Box 387 Athens TX 75751	card	2.00
Charles Dahlgreen Box 2276 Oak Park IL 60303	$	11.70
Saul Eisen 1801 E Cotati Ave Rohnert Park CA 94928		0.68
Lois H. George-Smith 3255 Country Club Rd #6 Tucson AZ 85716	$$$	13.56
* David Greenwald 5611 Dawes Ave Alexandria VA 22311		5.23
Barrie Jaeger 407 N Orange Dr Los Angeles CA 90036		4.68
* Steve A. Johnston 13341 15th Av NE #D-204 Seattle WA 98125	$	1.64
* David Leithauser 4649 Van Kleeck Drive New Smyrna Beach FL 3	$	1.80
Mary Leue 196 Elm Street Albany NY 12202		11.64
Fred McCamic 11 East Church St Absecon NJ 08201		5.80
David Meile Box 13038 Dinkytown Sta Minneapolis MN 55414		4.02
James Murrell 317 Barclay Rd Chapel Hill NC 27514	$	2.00
Marilyn Nelson 10020 Clearmeadow Dallas TX 75238		4.68
Tom & Jeanne Nordland 2344 Ocean Ave #2 Venice CA 90291		9.72
John Padalino Dingmans Ferry PA 18328		5.00
* Stan Pokras P.O. Box 14086 Phila PA 19123	$$$	0.80
Scott Reed 32 Abbott St Greenfield MA 01301	$	2.00
James Richards 3310 W St Paul Ave Milwaukee WI 53208	$$$	0.79
Lisa Schaeffer 13800 Netherwood Southgate MI 48195		2.35
Tom Sherman 224 South Chester Rd Swarthmore PA 19081		2.35
Scott Sherman c/o Res. Mission-Madagascar 1818 4 St NW Wash DC 20433		0.90
David Smith Diamond Eng 6504 Pardall Rd #4 Goleta CA 93117	$$$	6.80
David Speicher 812 Ellington Ct Indianapolis IN 46234		7.82
Cordell Svengalis 605 Eastmoor Dr Iowa City IA 52240	guest card	4.68
* Don Thielke 4904 N 48th St Milwaukee WI 53218		
Ann Weiser 5825 Telegraph Ave #45 Oakland CA 94609		
Bradley Worrell General Delivery Amagansett NY 11930		
Millard Zeisberg, 311 Elk Forest Rd, Elkton MD 21921		

Bob Theobald & John Tobler have dropped out

The above figures represent the state of your account before deducting for this months mailing.

$ - means that your account is low, it's time to send money!
$$$ - means that this is your last issue - send $ now.
card - means that a post card was sent instead of this issue

Deduct 7 1/2 to find your current account balance.

Next deadline: JUNE 10, 1987

Typical accounting sheet for a many-to-many.

Just for fun, Ann Weiser puts out five newsletters, each desktop-published with the Macintosh. No stranger to computers, she finds they pale in effectiveness to an intensely cultivated network of active friends. I agree.

The enabling technology for the unhurried group conversations she describes here is the cheap, quick Xerox machine. As personal copiers become commonplace, so will personal group letters.

She is the coordinator for Action Linkage, a network of activists teasing out ways to enhance group brainstorming. You can get the booklet "Letter Groups" for $5 postpaid from Action Linkage, 5825 Telegraph Avenue #45, Oakland, CA 94609.

—Kevin Kelly

I had been a science fiction fan and had belonged to several APAs when I went to a conference led by Robert Theobald called "Values and the Future." Fifty of us were frustrated to find that at the end of two days there was so much left to say about the subject. I described the APA format and talked about how, unlike a newsletter, it would allow "many-to-many" communication rather than "one-to-many." Someone seized on that phrase and that's how the many-to-many (M2M for short) got its name.

Futurist Robert Theobald joined and participated in that first M2M. When he saw the results, he asked me to help start more M2Ms as part of his fledgling organization Linkage, now called Action Linkage. The history of M2Ms has been bound up with the history of Action Linkage ever since. Our purpose is to encourage people to talk to each other about the rapid changes going on in the world — what they are, what they mean, and what we can do to meet the challenges they present. We don't push solutions, and we prefer to try to see the whole picture rather than focusing on single issues. But when people do come up with win-win local solutions to the problems of rapid change, we try to get the word around. Basically we work by creating "open space" for people to share ideas about the future and to link for action to help create the future.

So M2Ms are ideal for us. People often join Action Linkage because they've been hungry for contact with others thinking about new ideas. When they join us, they can immediately talk with other people all over the country (and some in other countries) through M2Ms on topics ranging from Designing New Civilization to Libraries/Learning.

One thing I love about many-to-manys is their variety. They come in all kinds and sizes, with all kinds of social structures, almost like miniature societies. In one, the editor sets a question each time for the members to respond to the next time. In another, the editor spends two or three pages at the beginning of every issue summarizing the contents, which gives a sense of orientation. The editor also writes personal notes in red ink on each person's copy, another way of encouraging involvement.

We even have a Computer Many-to-Many, showing that computers and M2Ms can coexist peaceably. Many of the participants are involved in computer conferencing elsewhere, but contribute to the Computer M2M for the benefit of those who want to talk about the impact of computers on society, but don't yet have computers and modems. We also have The M2M on M2Ms, which discusses ways to improve the M2M form. There are lots of ideas for improving the ability of M2M groups to focus on tasks together, develop topics, and create consensus on issues. And we're just beginning.

Altogether, Action Linkage has about fourteen M2Ms. I've heard that at the time of the American Revolution there were Committees of Correspondence, which operated through the mail in round-robin letter format. I'd like to think of us as their communicational heirs. ■

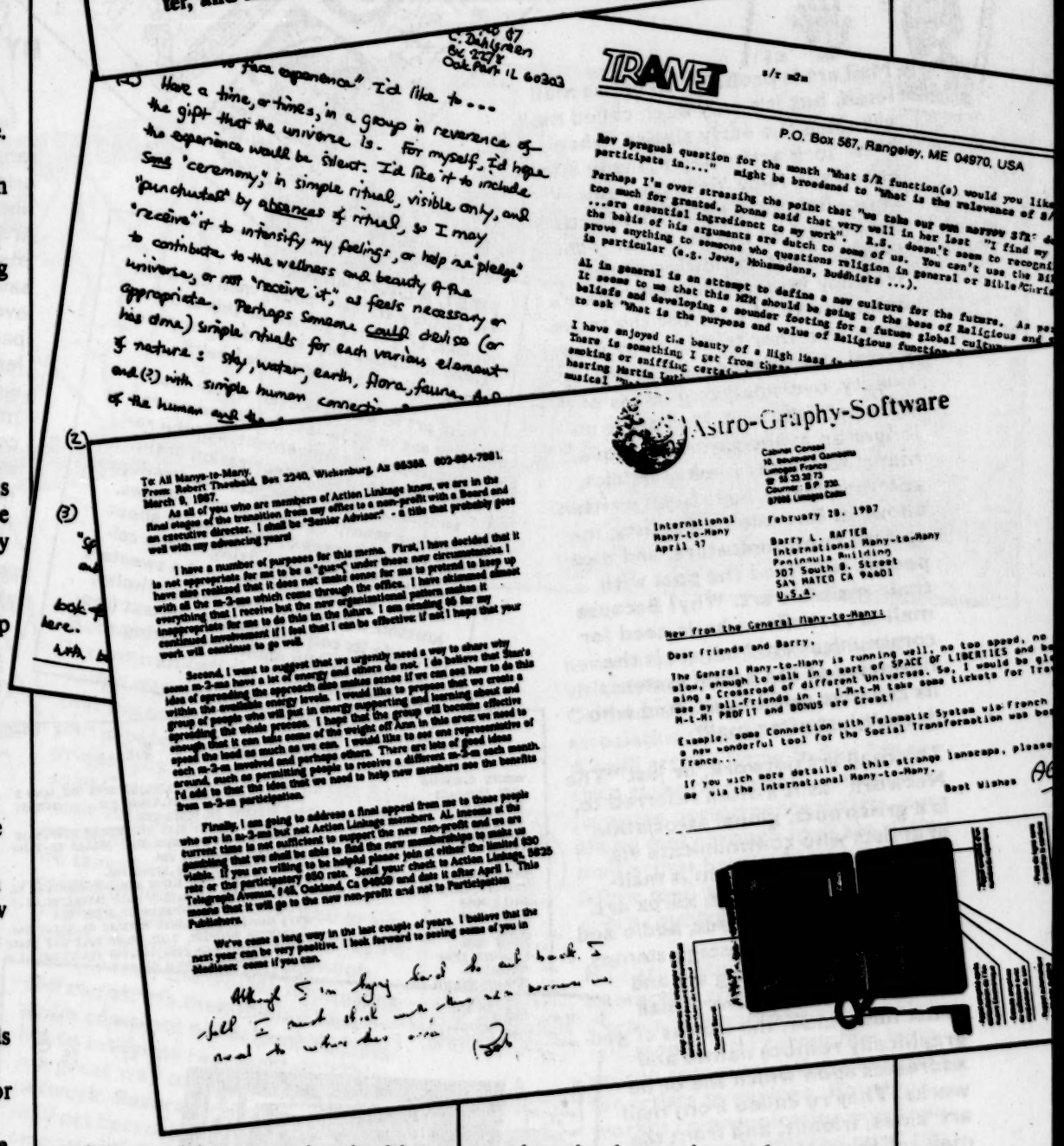
THE CIRCLE LETTER

The circle letter is a traveling salon, a soft-tech conference session, a recall of a lost art form — the well-written letter. It is useful for keeping community with scattered friends and colleagues, for keeping lives current, or for playing mental handball with ideas. We use this one for our eight-sibling family, to keep the common conversation intact, and to take the heat off the homeplace as bulletin board.

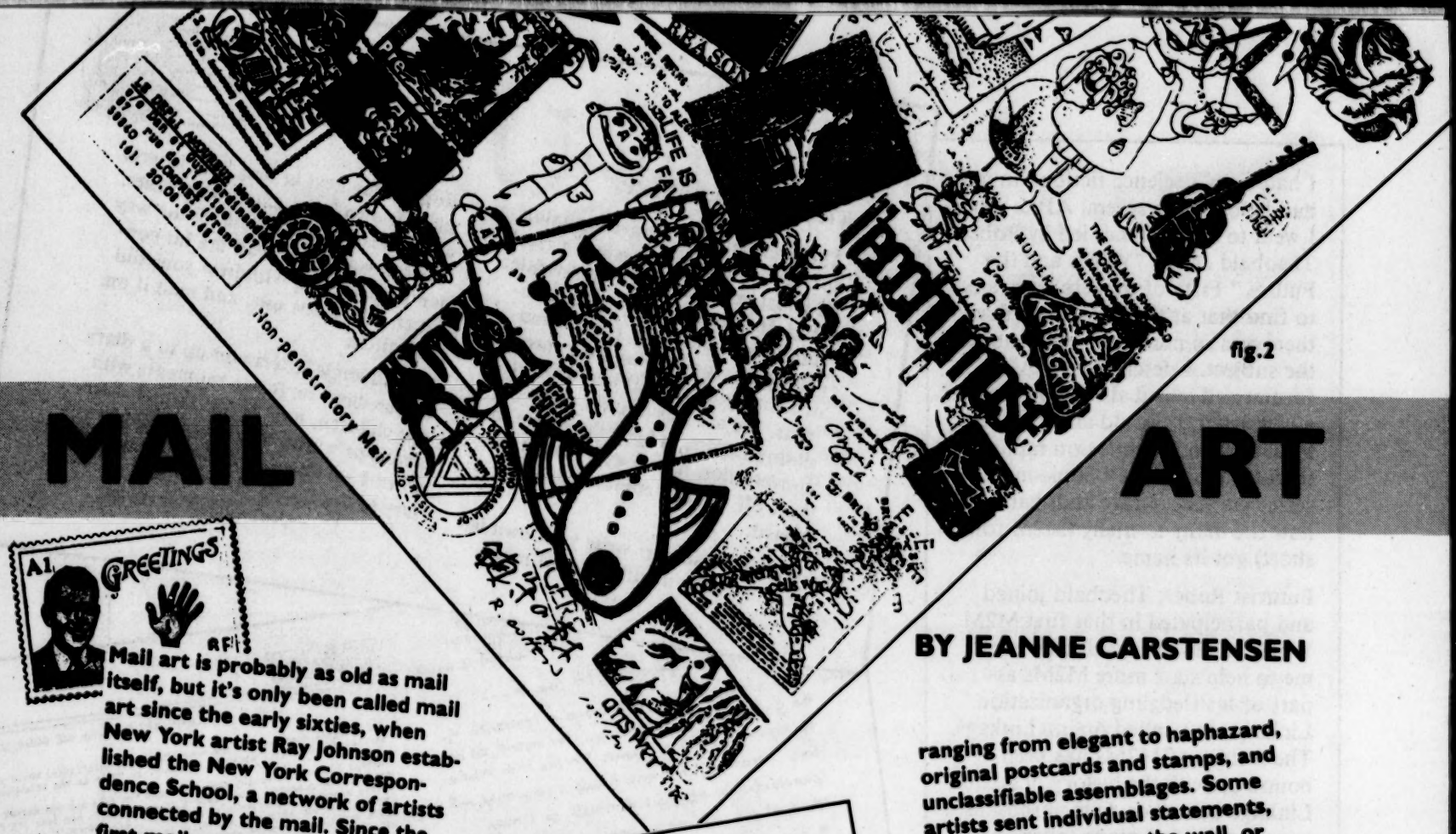
Here's the starter: write your own letter, and mail it with a list of mail stops to the next in line, who inserts his/her own letter along with yours, to the next stop. Etcetera all the way back to you. Now, read the fat contents with relish, withdraw your old letter, add a new one, and mail it on. Full circle.

My old circle letters add up to a diary of our days, forgotten moments with our children, moods of summer afternoons or wintry mornings long ago when I sat down to add my commentary to the family circle letter.

—Rhoda Weber Mack



MAIL ART



BY JEANNE CARSTENSEN

Mail art is probably as old as mail itself, but it's only been called mail art since the early sixties, when New York artist Ray Johnson established the New York Correspondence School, a network of artists connected by the mail. Since the first mail art exhibition at the Whitney Museum in 1970, there's been plenty of time for the movement to either trickle away into postal obscurity, or die at the sweaty, overanalyzing hands of the art establishment. Mail art is no longer an avant-garde art movement; too many books, articles, and manifestos have been written about it. But talented artists, incessant communicators, and nice people still flood the post with their mailable art. Why? Because mail art satisfies a basic need for communication. Mail art is the flowering of the postal system, its creative fulfillment. And who doesn't lust after mail?

The mail art network, or just "The Network" as it's often referred to, is a grassroots, global association of artists who communicate via the post. If the medium is mailable, it can be mail art; xerox art, artist's books, postcards, audio and video art, original postage stamps, language art, recycling art and "zines" all qualify. Every mail artist has a LIST, the canvas of geographically remote names and addresses upon which she or he works. They're culled from mail art 'zines, friends, and from the mail art the artist receives from being on someone else's list.

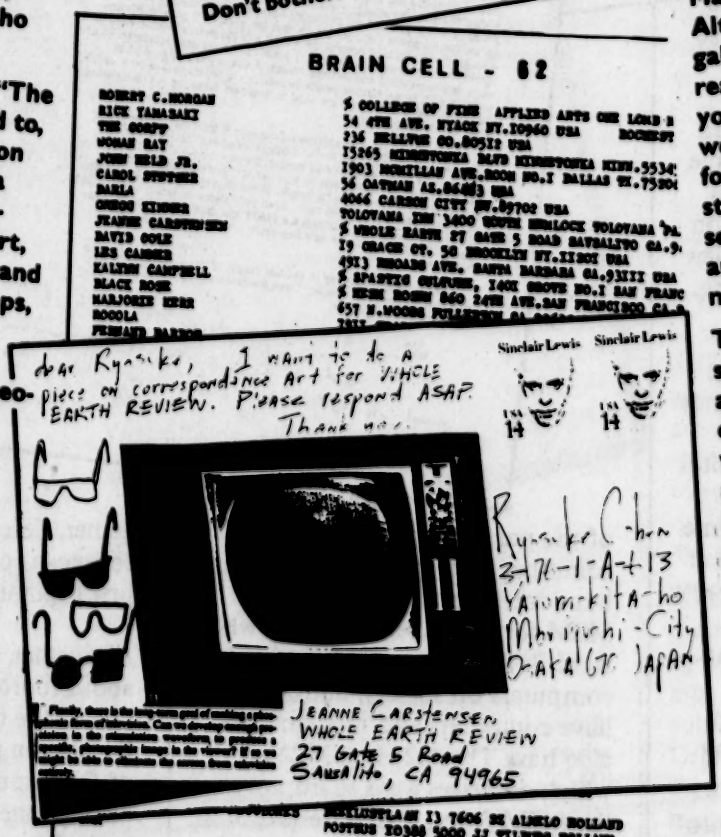
Xerox and mail artist Tom Patrick (see "Xerox art," p. 42) got me started in the mail art network with a list of about 30 names and addresses. One wall of my office is now covered with the art I received in response to my humble postcard (right). From European countries, Poland, Czechoslovakia, Japan and around the United States artists sent me original collages, xerox art ranging from elegant to haphazard, original postcards and stamps, and unclassifiable assemblages. Some artists sent individual statements, meant to be hung on the wall, or saved, or thrown away — whatever. Others were invitations to participate in ongoing mail art projects. This incredible stream of worldwide visual imagery into my mailbox was like participating in a collective postal dream. Having images from all these people I'd never met from countries I'd never visited placed me in a new kind of community. An English mail artist said it best for me with a stamp, "Worldwide Friendship," with two hands emerging from envelopes to grasp each other (fig. 1).

Mail art needs to be experienced. Although mail art is shown in small galleries and artists' homes, the real gallery is your mailbox. When you receive a battered, colorful work of mail art plastered with foreign stamps and original artist's stamps in response to a work you sent out — that's the actual mail art: the mutual exchange, the communication between two artists.

The crudeness of the postcard I sent out to begin research for this article is vivid testament that anyone can play in the mail art network, as long as you're serious about consistently participating. There are no free lunches here and you get back as much as you put into it, just like in other communities. Since mail art is about communication more than the individual artworks, you don't have to be an experienced artist to take part: just willing. Belgian mail artist Guy Bleus writes about mail art criticism: "How to judge mail art? The answer is clear and obvious: mail art cannot be judged! Paraphrasing an expression of Gunther Ruch, I would say, 'There is no

FIRST, A DISCLAIMER:
Do not try to learn about mail art from books, or gallery shows, or this article. Reading about mail art is dangerous to your mental and aesthetic health.

Mail art in books is even worse than mail art in galleries. Books may serve to document the movement, but the reproduction and categorization of the whimsical, ephemeral stamps, envelopes, rubber stamp designs, xerox collages, and assemblages of the above is about as interesting as a knitting needle collection without samples of the sweaters knitted with them. Mail art on display, outside its communication context (represented by the mailbox) is boring. Don't bother.



good or bad mail art. There is mail art or no mail art.'" You will like and dislike mail art, and your art will be liked and disliked by other artists. But anyone can join in.

Many artists say their main reason for participating is to communicate with other artists; mail art is a low-tech, inexpensive way of avoiding isolation, as any mere letter writer can understand. Another almost universal motivation seems to be that it's fun. And indeed, most mail art has a light, almost gamelike quality.

Waste Paper Co. Ltd.
Lambeth Walk
on SE11 ENGLAND.

A.1. Waste Paper Co. Ltd.
71, Lambeth Walk
London SE11 ENGLAND.

fig.1

Which isn't to say that thought and purpose don't go into much mail art. Tucked between the sheets of visual material I found numerous mail-art manifestoes and statements of purpose. Being able to write a manifesto if you feel like it is part of the fun of participating in a decentralized, anti-art-establishment movement. A common foundation does seem to connect all mail artists: an anti-mass-media devotion to free expression and one-on-one exchange between artists based on mutual trust. Not everyone would express it in exactly those words, but the unspoken laws of the network — that the recipient of mail art should give in return, and samples from everyone who submitted must be included in any mail art show — maintain these ideals.

This is the traditional gallery system tipped on its head. Mail art is inclusive rather than exclusive, and participation is for enjoyment and contact with other artists rather than for money. Here artists can flourish, artistically if not financially, outside the gallery system that threatens to stifle creativity and sacrifice individual integrity. Many mail artists also work in the greater art world and hope for success there like anyone else. It's often pointed out in the network that mail art is not as pure as all its good intentions declare. But despite the internal bickerings, I found the basic ideals to be true.

Because the purpose of mail art is communication, many artists design ongoing mail art projects that become actual records of who participated. For his "Brain Cell" project (fig. 2) Japanese artist Ryosuke Cohen asks artists to send him their stamp design, rubber stamp, or stickers. Every eight to ten days he takes the submissions he's received (usually about 60) and prints or pastes them onto a sheet (they're colorful hodgepodges of symbols from around the world), and makes 150 copies. He then mails a sheet and a complete participant address list to everyone represented. (This is a great way to get started in the network. Several artists sent me mail art because they saw my name on one of Cohen's lists. I hadn't even sent them anything!) Cohen has created a constantly mutating rubber stamp community with its own community memory.

Ben Allen of Northern Ireland is collecting people's photobooth photos, which he then cuts up and reassembles to create fictitious people's faces (fig. 3). Staying a step ahead of the CIA and FBI, "The Dott. SW. Aqu'flott Laboratories Ltd." has started a Network Fingerprint File. Like Cohen, "Dott. Laboratories" compiles the fingerprints that artists send him and then sends everyone a copy. Each of these projects becomes a random snapshot of the network of which each participant has a copy: the network equivalents of slick gallery or museum catalogs.

My one wall of mail art is a tiny sample of what you can collect from the network. I've peered into the dusty files of mail artists who have saved ten years of work that they've received. Personalities spill out of the files on the different assemblages, of people they've

fig.3

never met from countries never visited, and of old friends, too. Collaborations often form from associations begun in the network. A mail artist I know in San Francisco recently hosted a group of Japanese performance artists, people he met through mail art. Other mail artists have told me of having fellow mail art freaks to visit in every country in Europe.

Mail art is still the ultimate of the interactive communication arts. Certainly telegraphy, telex, telefax, telephones, and computers have unique communication qualities for artists to explore. But the world's communication common denominator is still the post. It's cheap, it's easy to use, and everyone has access. Besides, you can't mail a brick via computer mail (a semi-famous mail artwork), or spraypainted leaves from your block in New England, or even weird rubber stamp designs. Someday we may all have computers with printers fancy enough to convey richness and variety — maybe — but for now nothing can beat the regular old envelope/postman/

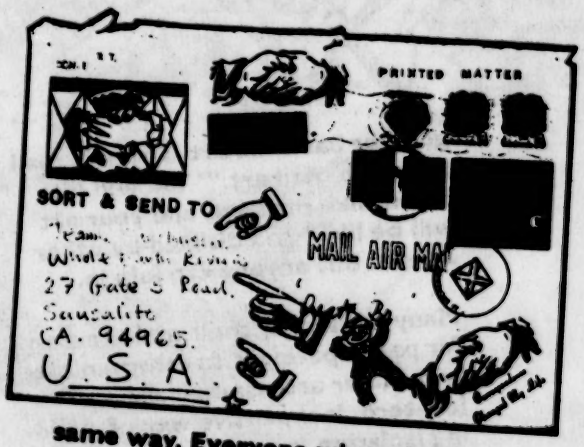
canvas bag/mail truck/airplane post. And don't forget the stamp.

★ ★ ★

To get involved in the mail art network all you need is names of mail artists and time to send out your work and to keep responding. Success is time-consuming because the more mail art you receive, the more you send out. Almost all of the approximately 30 artists I sent my postcard to responded. Several other people I didn't mail to also sent me mail art; they got my name from other lists of projects I participated in. Since I didn't mail out anything after my first postcard (my excuse is that I'm a busy editor) I only receive an occasional postcard now. But I've heard from active mail artists that the mail tends to avalanche; your name will spread to more and more lists. That's the natural tendency of a network. My next mailing will be a copy of this article to everyone who has sent me mail. So the flow may begin . . .

Mail art is closely linked to the underground cassette scene (p. 110), xerox art (p. 42), and "'zines" in general (p. 46). The publications reviewed on those pages will often run announcements of mail art shows and review other mail art publications. The quarterly Fact Sheet Five (p. 47) has hundreds of "'zine" reviews each issue. If you're only going to subscribe to one publication, that's the one. Order interesting-sounding mail art publications from there and start sending out mail art to the mail artists you'll find listed inside. Submitting to a mail art "show" is a good way to get a list of names fast. Someone will announce a show on a certain theme. You send in your entry and you'll receive an address list of everyone else who submitted. Compilation magazines work the same way. Everyone who submits gets a copy of the magazines. Accumulating names is no problem.

Here's a list of mail art magazines compiled by San Francisco mail, xerox, and performance artist Stephen Perkins; it's by no means comprehensive. ■



ND: P. O. Box 4144, Austin, TX 78765. $5/3 issues.

Foist: Collective Foist, P. O. Box 44, Penfield, NY 14526. $5/2 issues.

Spiegelman's Mail Art Rag: Lon Spiegelman, 1556 Elevado Street, Los Angeles, CA 90026. Send SASE for information.

Kaldron: P. O. Box 7036, Halcyon, CA 93420. $5/annual.

Compilation magazines:
Write to the individual magazines for deadlines, themes, etc.; include SASE.

Alto: Cas, Post-74, I-37066 Sommacampagna, Verona, Italy.

Level: P. O. Box 50164, Indianapolis, IN 46256.

Mani Art: Pascal Lenoir, Rue Dumage, 60570 Andeville, France.

National Stampagraphic

"I stamp therefore I am," these rubber stamp fanatics explain on their cover. This is the best single source of the mail-art staple — rubber stamps. Short articles give ideas for projects, profile stamp artists, and cover some mail art shows, but the real news is in the ads. Many artists have started their own lines of rubber stamps, everything from tacky teddy bears to elegant calligraphy, to bizarre or whimsical designs. Order your catalogs here. —Jeanne Carstensen

National Stampagraphic: 1952 Everett Street, North Valley Stream, NY 11580. $12/year (4 issues).

Correspondence Art

Yes, I know I said mail art books stink. Yet should you want to gaze back on Network activity through 1983 expertly frozen in an anthology of primary documents, **Correspondence Art** is more than just competent. Here is the international art-scene view of mail art in DETAIL, as told by the Network's more famous participants in manifestos, short art-history-type articles, and examples of their mail art. —JC

Correspondence Art: Michael Crane and Mary Stofflet, Editors. $15.95 ($17.95 postpaid) from Contemporary Arts Press, P. O. Box 3123, Rincon Annex, San Francisco, CA 94119.

Ruggero Maggi

FAX

Fax (facsimile machines) send copies of documents across town, or around the world, the same way you would make a regular phone call. Because they send a copy of whatever is on the page (including text, graphics, and signatures) Fax machines have replaced much of the worldwide Telex and some of the overnight express traffic. Fax has become increasingly common, and is now a reasonable product for most businesses (large and small) to consider.

To meet this need, several manufacturers are making desktop Fax machines for under $2,000 which include telephones, autodialers, and auto-answer features. These machines are capable of sending a page in 20 seconds to a compatible machine on the other end. There are many available, including the FAX 110 from Canon (about $2,000 list price, under $1,700 from discounters). —Michael J. Kleeman

In Hong Kong, Fax machines are so hot they are putting bicycle messenger services out of business. They have the highest per-capita use of Fax anywhere in the world. Hong Kong Telephone says there is more Fax traffic between Hong Kong and the USA than voice traffic. Wave of the future? I'm so tired of trying to figure out problems with my computer modem, Fax may be the answer. Good resolution, and some of the machines can even be used as copiers!
—Dave Brook

A corporate chairman I know refuses to deal with computers, yet enjoys the benefits of computer telecommunications. Whenever he travels he carries a portable Fax machine. To communicate he writes his notes on legal pads, flops the notes down on his Fax machine and lets it dial headquarters. They'll get his handwritten messages and send back whatever documents he needs in a matter of hours. It's like putting a telephone into the heart of a xerox machine, which is almost what Faxes are.

I talked to Whole Earth Access, who keep up with practical electronic gear at discount prices. Here is what they are selling:

Northwestern Bell Fax — has built-in phone with speed dialing, stores five documents, has autoreceiving. **$1,395**, plus UPS shipping.

PacTel Fax — similar to Northwestern Bell's Fax, "looks like a Canon FAX 110 inside." **$1,495**, plus UPS shipping.

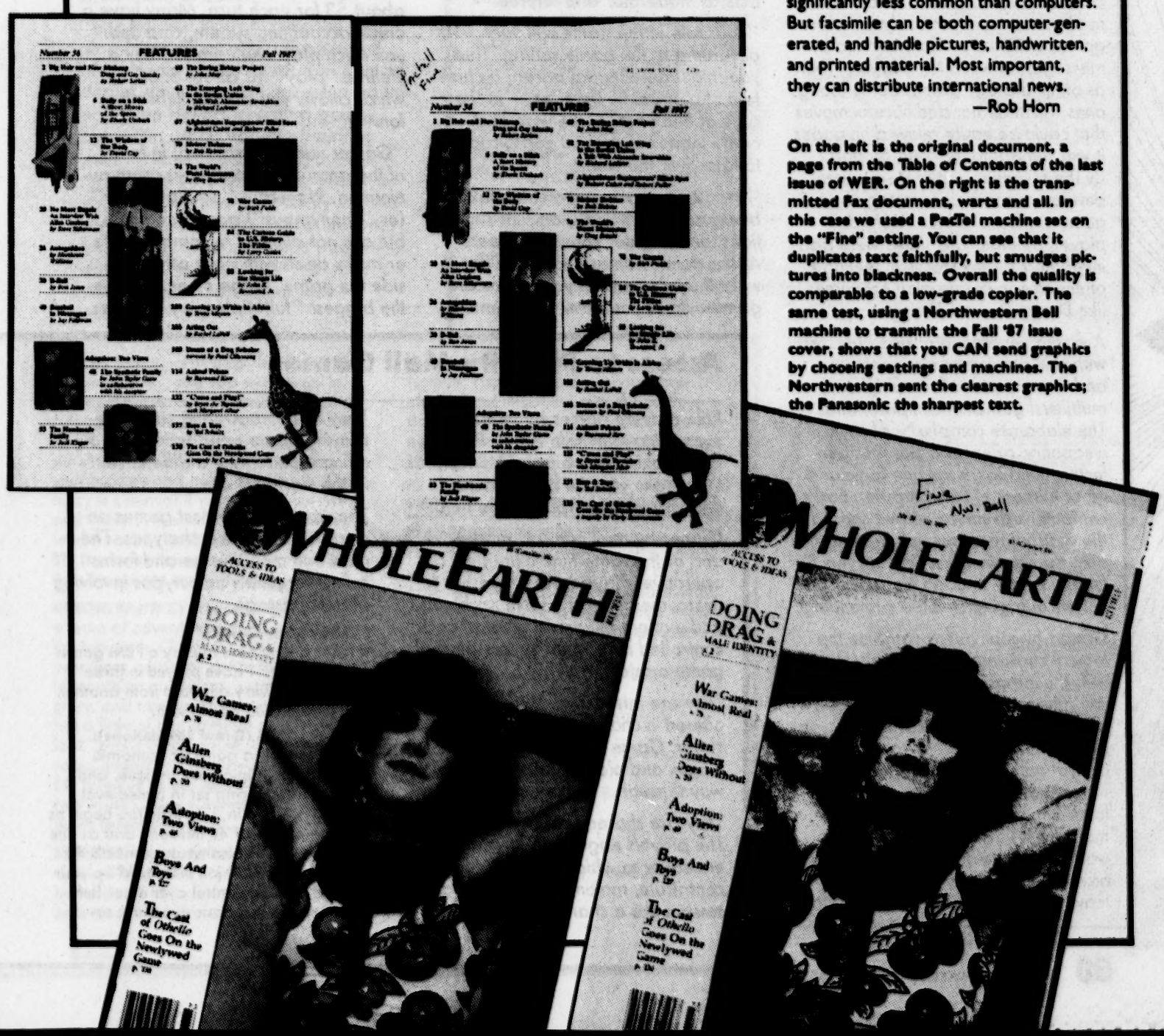
Panasonic Fax — superlative quality; also has a built-in answering machine for voice messages. The one Whole Earth Access uses between their stores. **$1,695**, plus UPS shipping. (See p. 140 for ordering information.) —Kevin Kelly

Freedom to Fax

Recent events in Panama have shown that facsimile equipment (Fax) has become an important part of the free press. When the Panamanian government closed the opposition press, the local and international business community organized an independent free press. Overseas offices will Fax important news clippings to a list of Panamanian businesses. The overseas offices are coordinated to avoid duplication so that within minutes dozens of Panamanian offices get each article. The local offices then use office copiers and distribute the news locally. The estimated equivalent print run is somewhere between 30,000 and 50,000 issues.

The government cannot disable facsimile machines and copiers without effectively severing their ties to the Western economy. This would destroy the country, too high a price for the government to pay. Since virtually all international businesses have the needed equipment, selective confiscation or monitoring is also impossible.

Printing presses and copiers have long been restricted by totalitarian dictatorships. Now facsimile machines must be added to their lists. People have conjectured in the past about the impact of computer communications, but have not mentioned facsimile. With an estimated 500,000 machines installed in the United States, they are significantly less common than computers. But facsimile can be both computer-generated, and handle pictures, handwritten, and printed material. Most important, they can distribute international news.
—Rob Horn



On the left is the original document, a page from the Table of Contents of the last issue of WER. On the right is the transmitted Fax document, warts and all. In this case we used a PacTel machine set on the "Fine" setting. You can see that it duplicates text faithfully, but smudges pictures into blackness. Overall the quality is comparable to a low-grade copier. The same test, using a Northwestern Bell machine to transmit the Fall '87 issue cover, shows that you CAN send graphics by choosing settings and machines. The Northwestern sent the clearest graphics; the Panasonic the sharpest text.

PLAY-BY-MAIL GAMES

BY KEVIN KELLY

THESE were my instructions: "You are a religious fanatic. Your purpose is to convert the entire galaxy to your particular point of view. Each of your converts has a 10-percent chance of converting the whole of that planet. Other players may win back your converts by unloading consumer goods on them." There were 200 other characters battling for the same worlds I was, and I had to have my next move in the mail, postmarked by tomorrow.

Play-by-mail games are widespread, but hidden by the privacy of first class envelopes. The first play-by-mail games were probably unfinished games of Chess or Go extended by messages between two players. Then as other strategy games came along, ones which demanded careful moves that could be easily relayed on paper, it was natural to try them by post. By the seventies, entire stores were devoted to room-size strategy board games, a few of which might be played by mail. The stores were also incubators for the peculiar teenage phenomenon of role-playing games, like Dungeons and Dragons.

A young generation of kids obsessed with role-playing games grew up and found a place for multiplayer, multilevel games in computerland. The elaborate complexity of spells, weaponry, rules, and plot was perfectly suited to the arcane logic and aloof fairness of the computer. Early computer adventure games carried the vocabulary of role-playing games onto the screen, awarding players for finding a way through the maze, but not encouraging creative pretending.

Games-by-mail today combine the logical challenge of the computer with the intrigue of role playing. They are amazingly detailed scenarios played out by an army of long-distant gamers submitting their turns to a central game-master computer, to be weighed and calculated, then tabulated into a printout sent by return mail. It's a little bit of bureaucratic warfare. By the middle of the game I have to keep in mind that before I leave a planet I must have on board at least 35 crew members of rank 7 or higher, they have to be paid in Celestran Credit (Form CC), and they can only be hired at a designated colonial base, as per starfleet manual. Rick Loomis, who invented this genre of game-by-mail in 1970 and now runs Flying Buffalo, the most reliable play-by-mail commercial service, describes the general procedure:

"The concept is simple: you send written instructions for each turn to the game company. The company processes and plots out the results. It reports back your new position, and acts as moderator and referee.

"Your role in the game will vary according to the game setting. Thus, you might be a feudal baron, a chieftain of a nomadic tribe, or — in the case of Illuminati — the wise and crafty leader of a great conspiracy to take over the world.

"For $2 or so, you get a rulebook, background materials, and instructions for filling out your turn sheets. At this point, games begin to differ in what they demand of you. There are games where you have to remember lots of codes to enter on your turn-sheet, and games where you write out long essays detailing what you want your character to do.

"After processing your turn, the game company will send you between one-half and ten pages of information about your turn. Most likely it will come back as a computer printout that will tell you what happened, either in code, in English, or something in between. Then you fill out another turnsheet based on these results, and send it back to the game company for another round. The usual cycle is every two weeks, or every month if you live overseas. (You also can request slow or fast modes of the games.) The company charges about $3 for each turn. Many have a credit accounting system, and debit you each play. You can also buy a lifetime "play" for about $500, which allows you to keep scheming forever.

"Games vary a great deal in terms of the amount of inter-player communication. Players in "no-diplomacy" (or "anonymous") games compete, but are not allowed to communicate or make deals with each other outside the game. At the other extreme, the biggest "full-diplomacy" games

Access to Play-By-Mail Games

Role-playing games by mail are everything television is not. Rather than making you a passive spectator, they make you the central actor in an ongoing fantasy. You are the hero.

Games-by-mail can be competitive and at the same time extremely cooperative. Players work together to overcome adversity, solve problems, and explore the world created and controlled by a more-or-less-neutral game master.

They are interactive. Players are offered a chance to be creative and clever. Game masters create challenges and players must think their way through.

They are shared group experiences. The players engage in a creative endeavor to which all individuals contribute, making a well-played session like a shared dream.

They are empowering. In a role-playing game your actions are significant and make a difference in the world.

They are mythic. Most games engage our hidden archetypes. The most common themes and forms reflect forgotten archetypes involving rites of passage.

PLAY-BY-MAIL GAMES
It takes a long time to play a PBM game: months, years. I have played in three games, each very different from another, and recommend all of them.

FEUDAL LORDS (Graef Simulations):
Feudal Lords is a game of economic development, diplomatic intrigue, and military adventuring set in a medieval society, England in A.D. 801. You begin as a Baron of one of 46 fiefdoms and as one of 15 players. The computer controls the other 31 fiefs. Your job is to build up your fief and acquire control over other fiefs. Each fiefdom has basic economic re-

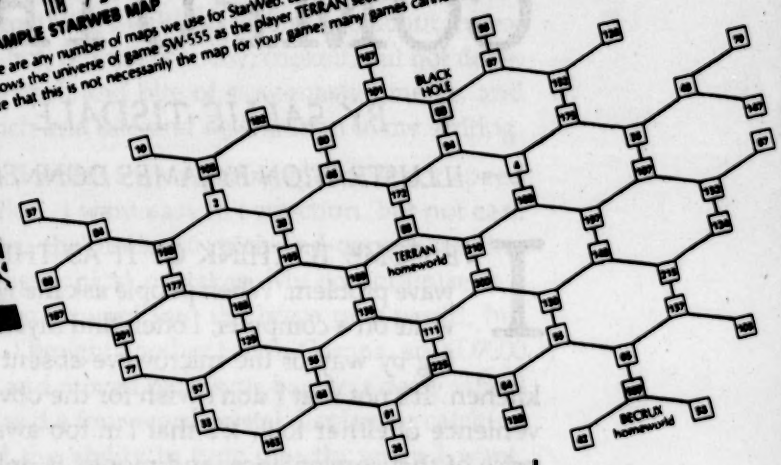
have elaborate alliances, player-run organizations, and often their own newsletters. Many play-by-mail alliances span continents, and occasionally generations, and last for years. The games have their own histories as well. StarWeb, one of the most successful play-by-mail games, has completed over a thousand cycles of its interstellar contest.

"There are about 10,000 players involved in games at the moment. Although there has been a big push for the last five years urging people to send their turns via computer networks like CompuServe or MCI Mail, only about 10 percent do so. The computers which run the games are invisible, and don't interest players. Play-by-mail gamers like mail. They can forward a message to other players with their move, swapping addresses. Pretty soon they have a mailbox full of personal, passionate mail.

"One of the fascinating things about play-by-mail games is that the backgrounds of the players are so diverse. Your allies may include a student, a county sheriff, a physicist, and a Shakespearean actor, but you won't often know, or care.

"The hardest thing to describe about play-by-mail gaming is the intensity of the experience. You start out wondering why any sensible person would pay three dollars to play a game, but within weeks you are haunting your mailbox, waiting for your next turn. When you are under attack, or you have just sent off a tricky maneuver, and you are waiting to see what happened, the suspense is tremendous. Will you survive? Will your plan work? Where's that lazy postman?" ■

D. SAMPLE STARWEB MAP
There are any number of maps we use for StarWeb. Each StarWeb game has a specific map. The map below is only a sample; it shows the universe of game SW-555 as the player TERRAN sees it on Turn 6 (see the sample printout on the facing page). Note that this is not necessarily the map for your game; many games cannot be mapped this neatly.



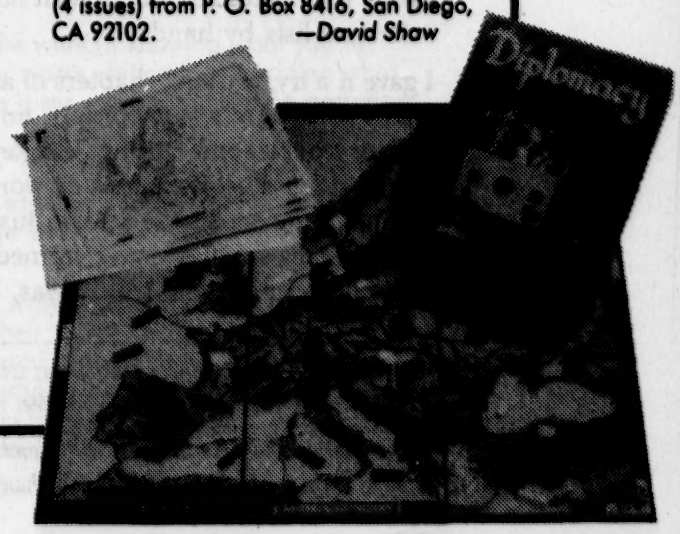
Diplomacy by Mail

I am in the midst of a play-by-mail Diplomacy game; in fact I just got my current update today. Diplomacy is an old board game; it's been around since 1953. It's a recreation of pre-World War I Europe. Each player leads one of seven different countries competing for control of most of the continent — England, France, Russia, Austria-Hungary, Italy, Turkey, and Germany. Everyone starts out in their home country and tries to expand and acquire other stuff. This is a very difficult game to play, because you have to continually negotiate with your neighbors for peace while attempting to stab somebody in the back to gain your footholds elsewhere. Every month of play time corresponds to a three-month season in which a move takes place. There's often a lot of telephone conversations and negotiations with other players before a move deadline, and sometimes face-to-face meetings with people if they live locally. One guy coordinates all of the moves by mail, and sends out little packages with maps that compile everyone's most recent move. It's a very elegant, simple system for playing lots of hard-core political military negotiations. Our current game will probably take two years to play out. There are magazines and books devoted to reporting the results and strategies of postal Diplomacy games. I'd start with these:

Diplomacy (the game): **$19.80** postpaid. **The Gamer's Guide to Diplomacy** (has all the tactics): **$5.50** postpaid. Both from Avalon Hill Game Company, 4517 Hartford Road, Baltimore, MD 21214; 301/254-5300.

Diplomacy World Magazine: $15/year (4 issues) from P. O. Box 8416, San Diego, CA 92102.

—David Shaw



sources consisting of gold, food, peasants, and townsmen, and you may invest in other economic activities such as agriculture, livestock, forestry, mining, fishing, and foreign trade. You must carefully develop your economy while building your military and political strength. Diplomacy is essential if you want to survive and thrive in this excellent simulation of a feudal society. **Cost: rules $2.50. Setup $10 (includes three turns). Turn fee $3. Turn frequency every three weeks.**

HEROIC FANTASY (Flying Buffalo): Design a team of adventurers and send them into the labyrinth. Guide them as they explore, overcome adversity, contend with the labyrinthian guardians, search for fame, glory, and treasure, treasure, treasure. HF has a little of the flavor of a "kill and loot" role-playing game, but without the social interaction. **Cost: rules $2.50. Setup $5. Turn fee $2.50. Turn frequency every two weeks, once a month, or once a week (electronic mail).**

STARWEB (Flying Buffalo): This is the classic PBM game. StarWeb is a strategic space game in a network of 255 star systems. You begin knowing only one, build spaceship fleets, explore connecting systems, capture worlds, locate other players and negotiate with them. Try a slow game and you will probably meet people worldwide. **Cost: rules $2. Setup $5. Deposit $5. Turn fee $4. Turn frequency every three weeks, once a month (slow game), or once a week (electronic mail).**

PLAY-BY-MAIL COMPANIES

Play-by-mail game masters come and go with great irregularity. For a list of reliable companies, send a self-addressed, stamped envelope to Play-By-Mail Association (PBMA), 8149 E. Thomas Road, Scottsdale, AZ 85252.

Clemens & Associates, P. O. Box 4539, San Clemente, CA 92672.
Flying Buffalo, Inc., P. O. Box 1467, Scottsdale, AZ 85252-1467.
Great Simulations, 27530 Harper, St. Clair Shores, MI 48081.
Palace Simulations, P. O. Box 743, Madison, NJ 07940.
Superior Simulations, P. O. Box 505, Fairfield, ID 83327.
World Campaigns, P. O. Box 321, Epping, NH 03042.

—Bob Albrecht

LOOK MA, NO COMPUTER

BY SALLIE TISDALE

ILLUSTRATION BY JAMES DONNELLY

I'VE COME TO THINK OF IT AS THE MICROwave problem. When people ask me why I don't write on a computer, I often find myself explaining by way of the microwave absent from my kitchen. It's not that I don't wish for the obvious convenience of either tool. It's that I'm too aware of the price of that convenience, and money is only a small part of it.

The virtues of creative writing on a computer have been extolled to me by many people, often in long, rambling dot-matrix letters on computer paper, the choppy words barely grey against the serrated pages. Cross-referencing, indexing, deletion and insertion in a few moments' time: a writer's dream. The elimination of a certain drudgery at the heart of writing, a built-in organization. Streamlined. Clear-cut. Simple.

I had owned a Smith-Corona electric typewriter for many years, and found it a delightful thing, as any good tool can be: doing exactly, and only, what it was designed to do, never needing repair, simple to operate, accepting of mild abuse. It had no *fat*. But I finally began to outwrite it; my self-taught, six-fingered typing had finally grown too fast for the old-fashioned type bar keys to handle. It was time to shop around.

I found myself feeling a little guilty, out of step, without a computer. I'd heard nothing but good about them, and in spite of gulping at the prices, found the idea appealing. I'm no stranger to the delight of technical competence, that gleeful pleasure in feeling my fingertips in control, managing a complex machine. Computers looked sleek, clean, *fun*. I was tired of cut-and-paste, manila folders full of torn notes, alphabetizing reference lists by hand.

I gave it a try, revising chapters of a book. So neat, so quick — no blurry tape borders, no mismatched margins or troublesome cutting. Just keys and tiny arrows and sudden electron bursts of words appearing and disappearing across the screen. Just me alone and in charge of the small, shining, framed world of my own writing, newborn and true. I was, I thought, writing very well. The shimmery green blocks of type looked so important, so complete, so *publishable*. I spent many hours seduced by the machinery, trying to ignore the slow shift of kinetic pages. My words were fine words, and in the same instant of wanting to continue refining them forever, I found them just perfect as they were.

It was only later I saw them clearly. I had to fiddle with a messy printer, and tear hair over a chapter missing (and, it turned out, gone forever) in the electronic void. I saw the run-on sentences and misguided thoughts, the digression and lack of clarity of any first draft. That green screen could have made the alphabet look good. It blindfolded my writer's eye. Sabotage.

I had become friends with a man who couldn't write personal letters without a computer, whose time-period reference frame had shrunk to seconds. He spent his time chasing obsolescence, trying to whip the chronic ignorance in a changing technology. His letters went on and on, streams not so much of consciousness as of association. His letters, much of what I read in magazines, my own error in judgement about my work: I could see the computer as a toady, a flatterer. So much of writing is self-conscious — self-referencing. I need the critic of my own scribbled comments and crossed-out phrasings as much as I need an editor.

It has taken me painful years of writing to learn the single most important lesson of the craft: revision. A writer's task is at least as much to withhold as to tell.

Writers seem to love or hate computers, with a vengeance. Advocates beam with stories of increased productivity; dissenters scowl and say something like — "It just doesn't feel right." It's a serious literary debate.

Author (and Whole Earth guest editor and contributor) Sallie Tisdale is a thoughtful and experienced dissenter. She says good writing is slow, hard work. No computer can change that.

—Jeanne Carstensen

It requires paring away what is not necessary almost more than revealing what matters. This is the secret to illumination: carefully cast shadows, the proper emphasis of line and angle. This is never easy; our words are all we have, our babies, and vastly significant in their labored appearance. Part of my work is figuring out what portion of that might be significant to anyone else.

I have learned over ten years that a first draft often looks nothing like the final one. Throwing out is almost always hard, and almost always good; sometimes I keep little more than a word or phrase. The computer screen plays an insidious trick on that process — it makes each word look done. Those flickering letters, so participatory and alive, look already set in type. Printed, beyond change.

There is more than appearance here. The computer seems to interrupt a process. It lends a false importance to the individual (called, so admiringly, the operator) — and to the page itself, at the expense of a breadth of vision. It actually interrupts the process of vision, of seeing thoughts become notes and evolve into a story, and only very eventually into type and print. The drudgery of writing is not an unfortunate thing, but writing itself, essential, the heart. Drudgery is a matter of attention to detail in the service of the whole.

This is the heart of the microwave problem. They make immediate what has always been slow, what had seemed to be slow by its nature. That's why people love them and why I find them so irresistible when around. Ah, speed. And why, health concerns and curious little minds aside, I won't buy one. Microwaves make fast what *should* be slow, a process of preparation and consideration and savor. Good cooking requires as much paring down and parcelling out of the unnecessary as good writing. Why in the world would I want to circumvent that process? My goal in cooking is not simply food, but good food well and carefully prepared. There is something weak and unfinished about microwave food; hot, but not crunchy; cooked, but not done. I like the crunch and bite of slow-roasted meals, and I want crunch and bite and deliberation in my writing.

So how do I write? I want *typing* speed, if not speed in preparation. I want ease in correction, but not ease of revision — the ability to catch and correct spelling errors, typographical mistakes. My compromise is a tentative step forward into the brave new world, but with limits. I bought another Smith-Corona, an XD7000 electronic, and moved from type bars to a daisy wheel for speed, and a four-word crystal display for catching errors (and the ability to type directly when I want, as I often do). My words are still in my *hands*. It cost me less than $400, has needed no repair, and even seems able to take a little abuse. This machine should last me for years, and the software never changes. ■

A Writer's Time

There I was with a nice advance from a New York publisher to write a book, and there was only one tiny problem, which I did not discuss with the publisher. I'd never written a book and didn't know how. I knew how to write, to edit, even to publish, but authoring? Help!

Help came in the form of a little book (read it in an evening; read it again the next evening) that spelled out precisely the task at hand: how to write a book. I got innumerable good things from Atchity's counsel, but the main three probably were these:

• Time is everything in the labor of writing. Organize your time, and the writing will have a chance to organize itself. I used most of Atchity's tips except the taking of many mini-vacations (I didn't have time).

• Use 5 x 8 cards! Salvation. Every idea, every separable quote, every item from the literature I was researching, each went onto its own card. Organizing the eventual 1,800 cards into piles was defining the chapters; subpiles defined the sections; sequence within the subpiles defined the sequence of the day's writing. This was THE handle without which I would have floundered for months.

*• Define in a sentence what the book is about. Searching for that sentence organizes your thinking; using it organizes your writing. Revising consists of removing everything that isn't in support of that sentence. In my case (**The Media Lab**, 1987, Viking) the sentence was a quote, "How will we directly connect our nervous systems to the global computer?"*

If this review sounds like a burble of gratitude, that's because it is. —*Stewart Brand*

•

Always head for drama at this point in the process [first draft]: choose the more dramatic alternative at every crossroads. Writing yourself "into a corner" guarantees drama as much as it does anxiety: the reader will relish watching you write yourself out of the corner.

A Writer's Time
Kenneth Atchity
1986; 194 pp.
$12.95
postpaid from:
W W. Norton
500 5th Avenue
New York, NY 10110
or Whole Earth Access

•

You can edit objectively after three days have passed and you cannot edit objectively after three minutes have passed. So the attempt to edit instantly is negating the natural process, not allowing time to do its job.

•

No time is more important than the time used to examine and schedule your time.

•

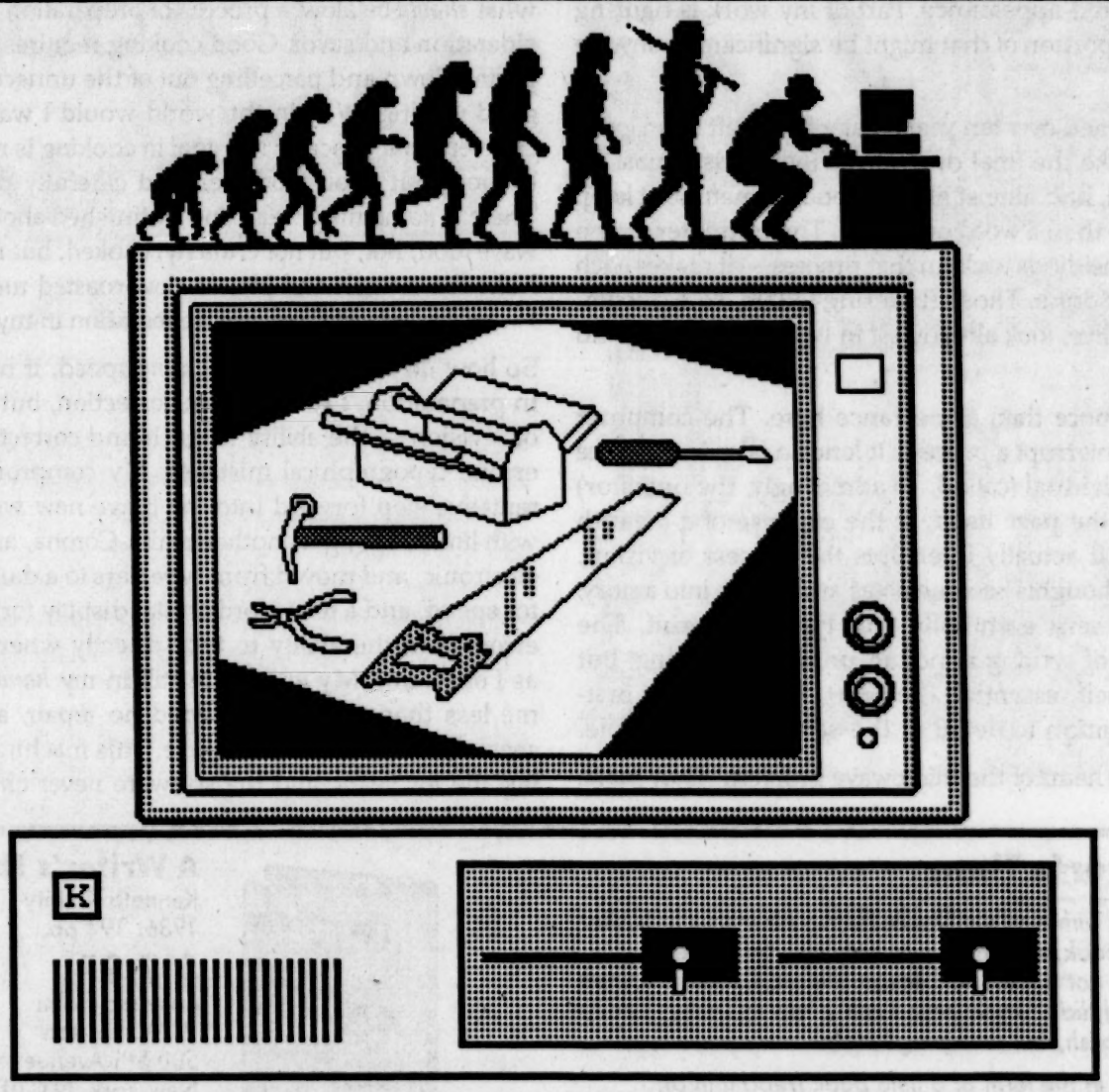
Don't sit down to write without knowing what you're going to write. Never waste writing time deciding what to write. Writing time is for writing, not for the gestation of writing.

•

If you're wondering whether you're experiencing End Time, you're not. True End Time displaces all other thoughts.

In Middle Time most writers have problems maintaining perspective toward their work. Middle Time's greatest pitfall is exhaustion, and its most common side effect is confusing that exhaustion with depression or with a dismal reevaluation of the work at hand. . . . During Middle Time you need vacations, as many as you can fit into your schedule.

ONE HIGHLY EVOLVED But Cheap! PERSONAL COMPUTER TOOLBOX



BY ART KLEINER

ILLUSTRATED BY JAY KINNEY

Dedicated to J. Baldwin, whose highly evolved toolbox (of the physical world) inspired this version (of the mental world).

Until he took up teaching at New York University, Art Kleiner was the person around here you asked if you had a computer question you wanted answered in English. He now teaches university courses on telecommunications and desktop publishing. In the manner of Galen, the great classical Greek doctor of anatomy, Art often describes elements of the information body for the first time. His ethereal accounts of computer networks eventually awakened Whole Earth to the realm of personal electronic journalism.
—Kevin Kelly

When you buy a computer, you automatically become a designer, like it or not. That's because the computer cannot help becoming, over time, a behind-the-screen representation of the patterns of your own mind — through your projects, documents, letters, budgets, plans, doodles, and dreams. Ultimately, you want to arrange the structure of that mental environment to reflect your creative and clerical habits, just as you design your home and rearrange the furniture to reflect your habits of day-to-day living.

All too often, though, organizing a computer environment requires wading through cryptic manuals and mental origami; so computer owners rearrange their own mental habits to match the design of the machine, instead of the other way around. That's about as uncomfortable as wearing the wrong size shoes. I struggled with the bad fit for several years on several computers and noticed quite a few irritating effects: filenames that were difficult to remember. Command sequences that didn't make sense. Programs that wouldn't accept each other's data, or simply froze up and stopped working when I tried to use them together. I was spending too much time mastering the intricacies of my computer's demands instead of doing the writing or planning for which I needed the machine in the first place.

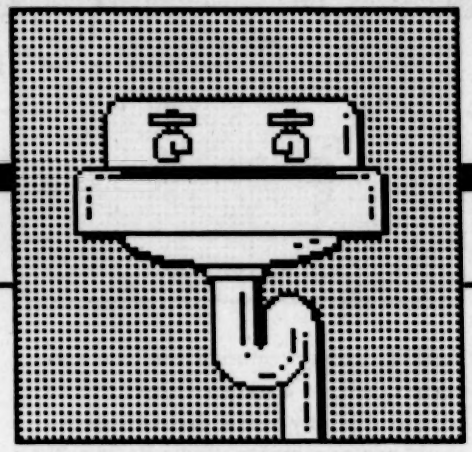
About a year and a half ago, I bought a new computer and resolved to take that opportunity to set up a system which would adapt itself to MY needs, instead of shoehorning my habits to fit the computer.

My design goals were, I thought, simple. I wanted to put together hardware and software which would help me manage all the work of my one-person business: writing, making automatically addressed mailings, keeping a budget, conducting research by computer network, dialing phone numbers (and remembering when I made the calls for my expense accounts), calculating my tax estimates,

and keeping track of notes and ideas on a dozen different projects at once. My machine had to be inexpensive, yet reliable — no unexpected breakdowns when I used a new program. It had to be self-evident — in other words, I did not want to remember too many commands. I wanted the screen to signal me, whenever possible, with my next move. It had to pop back and forth rapidly between different tasks. And it had to be easy to use; I didn't mind hassling with configuration schemes to set it up (though I drew the line at learning any programming language), but once I got down to business I didn't want the computer *itself* to distract me, even a little, from the tasks I use the computer *for*.

It took me a year to evolve my system to its current status. Along the way, I learned one of the best-kept secrets of the computer industry: Once you narrow your choices to a few recommended contenders, it doesn't really matter much which particular word processing or data management packages you buy. They all pretty much work the same way; the differences are cosmetic. Much more important are the techniques with which you use them, and with which you link different programs together.

I think my system is about as inexpensive as I could get and still have a computer which meets me and my needs more than halfway. I tested that theory recently when I helped a friend put together a similar system for himself. Based on that shopping trip and my own year's worth of fine-tuning, I estimate this total cost, if I were buying everything new in mid-1987: about $1300 for hardware, $400 for software, and $100 for a few necessary books and publications. Not bad for a machine that has made it possible for me to survive financially as an independent writer and consultant.



HARDWARE

THE BASICS

Listening to computer journalists talk about their machines is like hearing wine critics discourse on fine vintages; a certain snobbishness inevitably creeps in. Me, I use the Gallo of computers — a so-called "XT/compatible," also known as an MS-DOS machine. Several hundred manufacturers make these, all imitations and refinements of what is probably the most popular computer ever made — IBM's PC-XT, until recently IBM's mainstay personal computer. Compared to newer models from IBM and Apple, the XT is a bit outdated, and somewhat slow; but it's far less expensive and still viable for most everyday office and information-gathering tasks. My computer is a "generic clone," assembled without a brand name by a two-person company called Sky-High Computers in a small office above a photocopy shop in Berkeley.

There is no need to buy a brand-name computer (IBM, Compaq, Commodore, Tandy, etc.) — unless you get a good deal. The best approach is to find, by word of mouth, a local retailer who is trustworthy and offers good prices. Many of these shops are too small to advertise in the Yellow Pages; check ads in your local newspaper with the best computer section (in New York, that means the Tuesday *New York Times;* in California, it means two small tabloids called *MicroTimes* and *Computer Currents*). To help you shop, the *IBM XT/Clone Buyer's Guide* (*WER* #52, p. 99) is still invaluable.

Choosing the hardware is not easy; there are as many variations in XT/compatible hardware as there are customers. But there are a few essentials that apply to nearly everyone buying this type of computer:

• Eight expansion slots. Mounted in the innards of your machine, these slots hold accessories which computer people call "cards" — plastic circuit boards the size of keypunch cards. Slots give you flexibility — the more slots, the more ability to add new types of cards.

• 640 kilobytes ("640K") of random-access memory (RAM) — the computer's internal "attention span" for programs and documents that it is working on. The more RAM, the more programs and documents you can interweave. The "desk accessories" I will shortly describe depend on having as much memory as possible.

• A monitor which can display clear text and pictures. There are two affordable such systems (of the many possible ones): "Hercules-compatible" (for monochrome) and "Enhanced Graphics Adapter (EGA)-compatible" for color. If you use monochrome, as I do, I recommend amber.

Why consider color? Because personal computer users often find the hardest part is getting their bearings — figuring out where they are in what program and what to do next. Color helps, by making it easier to instantly distinguish between different types of text or image on the screen. In a writing program, for instance, normal text can be white-on-blue while text you've marked to move elsewhere is white-on-red, and the command menus are black-on-cyan. Makes it easy to instantly get your bearings. Is that worth the $600 higher cost? Not for me, right now; maybe someday . . .

• At least one 20-megabyte (or larger) hard disk drive, for storing programs and documents.

Hard disks are different from those floppy squares which you push into and out of the computer. They live permanently inside (or in a box outside) your computer. A 20-megabyte hard disk holds as much data as 56 floppies. Because they're so large and immovable, they become the underlying support for a metaphorical landscape — what computer people might call a "virtual landscape" — of documents, files, and programs, divided into areas of interest. You use your computer as a vehicle across the mental terrain on your hard disk — not much different from using an automobile to navigate the countryside out in the physical world.

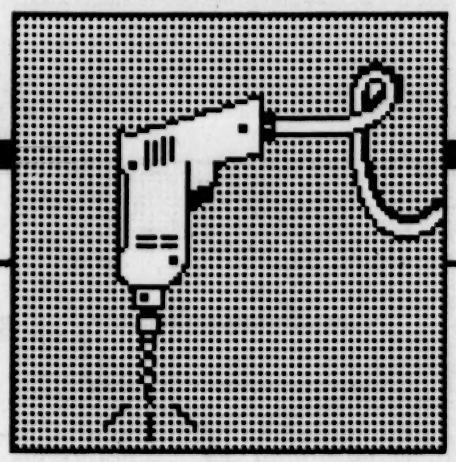
One can operate a computer without a hard disk. Indeed, most people used only floppies until a couple of years ago, but that is a much-diminshed use of the machine. Hard disks offer you any program or document in your library, instantly; floppies require you to devote far too much attention to which disk

has which programs and files. You're not spending your time getting your work (or play done); you're operating your computer.

With my computer budget, I had a choice of an XT/compatible with a hard disk, or a Macintosh without. Even though I preferred the Macintosh overall, the benefits of a hard disk are worth much more than the benefits of any specific machine. (You also need one floppy drive — to insert new programs into your computer, and to keep important documents stored away from your computer — so that, say, if your computer is caught in a fire, you won't lose all your work.)

• A book about how to use it all. Even the smoothest computer setup will take a few months and a half-dozen tries before you finally get it just the way you want it. These books speed the process. *MS-DOS and PC-DOS* by Peter Norton (1984, Brady) is an especially good non-technical introduction for novices who want to know how everything works, and why. A new edition this year should fix its slight out-of-datedness. *The MS-DOS Bible* by Steven Simrin and the Waite Group (1985, Sams) offers quick reference to a wide variety of commands; and *Managing Your Hard Disk* by Dan Berliner and Chris DeVoney (1986, Que), focuses on detailed strategies for doing just what the title says.

SOFTWARE:



HEAVY-DUTY TOOLS

Get as little software as possible. Not for reasons of economy, but because really using a software package means becoming so intimately familiar with it that you meld it into your synapses. I divide my choices into three groups, based on the way that they are set up. Heavy-Duty Tools are big programs like my word processor, spreadsheet, data manager and telecommunications program. My computer can only handle one of these at a time. Desk Accessories are smaller programs which I can instantly bring forth by hitting the right key. And a few programs and commands act as Underlying Support, mostly invisible but making things much easier and more effective behind the scenes.

• PC-WRITE: not just the best all-around word processor I've seen, but also the most successful single example of "Shareware," or user-supported software. (PC-WRITE's author Bob Wallace discusses Shareware eloquently in *WER #46*, p. 49; also see Alfred Glossbrenner's definitive book, *How to Get Free Software*.)

People are usually impressed with writing programs because they shuffle text so flexibly that they make writing much easier. All writing programs do that well, but not many know how to handle presentation: in other words, how well and how easily can you make your words look just the way you want them on the printed page? PC-WRITE's formatting commands are easy to understand. That's especially useful — not just for printed files, but also for files from other programs. When I send my annual expense record to my accountant, for instance, I don't print it directly from the data-management program. I save it as a text file and edit it with PC-WRITE, adding comments in italics so my accountant instantly knows the importance of any particular number. I could add comments within Reflex, but only by bending the program against its grain; it's better to work with free-form text in a program that's designed specifically to handle free-form text.

• PROCOMM: my window on the world — a terminal program, managing the connection of my computer to other computers through the telephone lines. Having used a variety of terminal programs, I settled on Procomm for three reasons. First, being shareware, it keeps evolving along with the fast-changing panoply of telecomm services. Second, it excels at helping you keep track of the documents already on your computer — important because so much telecomm revolves around shunting documents back and forth. Finally, Procomm is intuitively correct — it feels right. Windows zoom open on the screen and sound effects beep and boop — not randomly, but to help you instantly understand what you're doing at any moment. (You can, if you wish, turn the sound effects off.)

• REFLEX: data manager of choice. I use it to enter large quantities of linked information for a surprising variety of tasks: Keeping our wedding list (with sublists to tell who is invited to which events, who has confirmed and who hasn't, and why we invited some people in the first place). Keeping track of my expenses, for tax purposes. Keeping grades lists for the courses I teach.

Most data managers work roughly the same way: First you design a form with the types of data you want to enter; then you pull out selected subsets of that information, organized in the order you specify. Reflex excels at reshaping and reshuffling its data, important because you usually don't know beforehand how you'll want to set up your final report. Reflex also excels at allowing you to set up databases that meet you halfway. Short, cryptic codes, for instance, are hard for human beings to remember — but they're better for computers, because they allow less chance for error. In Reflex, you can establish formulas that convert short codes to long words and back again — to remind you which code to type, then check to make sure you typed it right, then convert it to a long word that will appear in your final report. When I enter a gasoline receipt in my tax records, Reflex automatically converts the date to the day of the week — and I know whether my excursion was a weekday work trip or a non-deductible Sunday drive.

Data management is so complex that you have to really know how to plan ahead with this type of program. I recommend the extra help in *Reflex: Tips, Tricks, and Traps* by Ron Person (Que, 1986).

• PC-CALC — a living ledger page. Called a "spreadsheet" program (after accountants' spreadsheets), this manipulates columns and rows of numbers. It's perfectly set up for keeping a budget — for looking ahead to next year's probable income and expenses. (Quick calculations are better served by SideKick, a desk accessory reviewed next page.)

DESK ACCESSORIES

People work at a lot of different things all at once, shifting rapidly between them — and a computer is at its best when it helps a person navigate instantly through a variety of tasks. For this reason, I keep my computer on all day. At any moment, I may need to quickly remind myself of my things to do, take notes on a phone call, add a quick sum, or jot down an idea. Desk accessories make it possible to do this without losing track of where I was before.

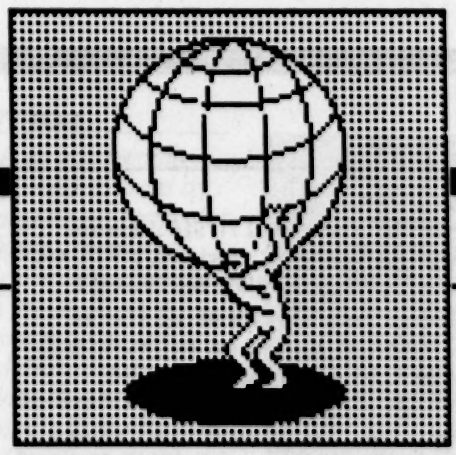
Every time I turn on my computer, it automatically loads up my preferred group of desk accessories. (I enter the commands for loading these desk accessories in a file named AUTOEXEC.BAT; when it starts up, the computer looks for that file and follows its instructions.) Then, at any time, I can press a particular combination of keys to call forth any desk accessory: Control and Backslash for PC-OUTLINE, Control and Alt for SideKick, Control and F1 for Turbo Lightning, and Alt and Backslash for SuperKey. Suddenly, a new menu is superimposed over whatever was previously on my screen. I use the Desk Accessory, then return to the previous screen. There are dozens of possible desk accessories available for XT/compatibles, but I limit myself to a few, because they don't always work together well, and my goal is to meld them into one seamless system. Here's what I use:

• TURBO LIGHTNING — a computer-based spelling-checker and thesaurus. Lightning has far fewer synonyms available than any book thesaurus, but it's far more convenient: just press a key, and Lightning replaces the word on the screen with a synonym that it has suggested and you've approved. Reviewed in *WER* #52 (p. 99).

• PC-OUTLINE — a pop-up list and outline manager. Its purpose is arranging all the text in a writer's or manager's life so you can instantly find one needle of meaning in a haystack of trivia. I can enter in notes, sort them, rearrange them, dial any telephone number within them using SideKick (see below), enter the time or date automatically within them, and hide whole paragraphs until I'm ready to deal with them. The ability to tag a paragraph with a one-line heading, and then browse quickly just through the headings, makes complex research and writing jobs immeasurably easier. I transcribe my notes in PC-OUTLINE, marking them with appropriate reminders and keywords as I go along; then, when I write an article based on those notes, I mix and match headings between several different files until I find exactly the notes I want.

This is a Shareware refinement of Dave Winer's READY!, which invented the genre. But PC-OUTLINE handles text and multiple outlines more effectively. At any given moment I have 50 to 75 different outlines on my computer. Some are temporary — this article started as one — while others, like my directory of phone numbers or (sigh) list of things to do, last forever.

• SIDEKICK — a collection of tools. The first popular memory-resident program, SideKick is also one of the most reliable. I use its calculator and calendar, and especially its phone dialer — which can pluck a number from any other program and dial it. A new version of SideKick coming this year promises a built-in outliner.



UNDERLYING SUPPORT

The preceding seven programs help me do my work. The rest of my software has only one purpose: to help me use the preceding seven programs more easily and effectively. I also list some general techniques for using MS-DOS here, because they're as important to me as any software I've paid for.

• PATH — an essential program for organizing hard disks, included free with the computer's operating system. Normally, PC/compatibles only allow programs to work with documents in the same section (called a "subdirectory") of the hard disk. Thus, novices are tempted to organize their hard disks according to type of software — to put the word processor and all writing files together under a directory called WRITING, for instance. But that method of organization serves the computer's arbitrary distinctions — not your own needs to keep different projects separated, or to use a variety of programs on one document.

PATH allows you to set aside a small section of your hard disk, keep *all* your programs there, and use them with any documents anywhere else on your hard disk. This frees you to organize the rest of your hard disk thematically. For instance, all the files dealing with my upcoming nuptials are in a subdirectory which I named WEDDING; another subdirectory, called ARTICLES, has all my writing-for-hire; within it I've created sub-subdirectories, each with the name of a different magazine I write for. Another subdirectory, NOVEL, contains my notes for an extended piece of fiction, and still another named NYU contains material for the courses I teach at New York University.

And my Heavy-Duty Tools? They're all in a subdirectory called TOOLS. The PATH command turns that TOOLS sub-

directory into a sort of dashboard control panel. As I navigate the terrain of my various projects, the programs in TOOLS travel with me.

• MARK and RELEASE — used to mix and match different groups of Desk Accessories without having to restart the computer. I have too many Desk Accessories to use them all at once; they don't fit in my computer's working memory. So I load Mark first, before loading any other Desk Accessories. Thereafter, when I type Release, it strips away all the Desk Accessories. Then I have several commands, which I've written myself, to load different combinations of Desk Accessories, depending on my immediate needs. If I get more working memory, I might not need these; but for the moment, I do. Mark and Release are part of a public domain program called The TSR Utilities.

• NORTON UTILITIES — sort of the software equivalent to keeping a spare tire and jack in your car. When something goes wrong, you can often use these to fix it. The most commonly used part of Norton Utilities is UNERASE, which recovers a file you accidentally erased. Version 4.0 is a vast improvement over previous versions.

• SUPERKEY — a program that lets you make up your own commands. It takes some time to learn and use, but it teaches you the most important lesson you may ever learn about your computer: you can redesign almost anything. SuperKey has helped me redefine commands in PC-OUTLINE, PC-WRITE, Reflex and Procomm so that they all work more or less the same. The goal of this somewhat obsessive project: peace of mind. I won't have to remember four sets of commands, or stop to remind myself which program I happen to be using at the moment.

• PC-SWEEP — Quick, simple help on a lot of tasks like copying files, erasing files, finding a particular file, etc.

• FASTBACK — A wonderful, albeit expensive program, used for quickly copying all the files on your hard disk onto a series of floppy disks. Then, if something bad happens to your hard disk (they're notoriously prone to sudden crashes), you have a copy of your work elsewhere. A more recent, cheaper program called PC-Fullbak may be just as good, but I haven't tried it.

• 1DIRPLUS — Makes them all work together.

The normal XT/clone shows you a cryptic prompt that looks like this: C>. To use Reflex, you must remember to type Reflex; to use PC-WRITE, you must remember to type its command name (ED, short for "edit"). 1DIRPLUS replaces this arduous system with a series of menus that you design yourself, menus which include all your other programs. 1DIRPLUS also keeps a list of all your documents and other files on the screen; you can use almost any program with any file, without typing in any file names.

There are many programs of this type — called "DOS Shells" or "DOS Enhancers" in the trade. I prefer 1DIRPLUS because it gives each user more complete control over what menus are available, and what each menu looks like. Plus, it's speedy and works reliably with ALL your other programs. One great feature: Type CTRL-T and a chart pops up showing all your subdirectories. You can instantly move to any point on the chart. This eliminates the need to type long subdirectory names, and provides an overview of the landscape of files and subdirectories on your hard disk.

CONCLUSION

As prices come down, the next-level-higher clone becomes more and more attractive — a so-called AT-compatible. By the time this appears, such computers will be available for under $1000 with hard disk. They run faster than XT-compatibles, and have more storage room — but they are an interim step. The ideal personal computer should embody the essential dream of anyone who uses a computer regularly: a mental servant that mirrors your working habits and performs any task instantly. PC/compatibles are a compromise towards that goal, but a good compromise. For people on a budget, they should continue to be a good compromise for at least 3 or 4 years. ■

BOOKS & PUBLICATIONS:

MicroTimes: Dennis Erokan, Editor; **$12**/year (12 issues). BAM Publications, Inc., 5951 Canning Street, Oakland, CA 94609.

Computer Currents: David L. Needle, Editor; **$18**/year (25 issues). Computer Currents/ Subscriptions, 5720 Hollis Street, Emeryville, CA 94608.

MS-DOS & PC-DOS User's Guide: Peter Norton, 1984. **$18.95** ($20.95 postpaid) from Simon & Schuster/Attn.: Mail Order, 200 Old Tappan Road, Old Tappan, NJ 07675.

The MS-DOS Bible: Steven Simrin/The Waite Group, 1985. **$18.95** ($21.45 postpaid) from Howard W. Sams, 4300 W. 62nd Street, Indianapolis, IN 46268.

Managing Your Hard Disk: Don Berliner, 1986. *Reflex: Tips, Tricks and Traps:* Ron Person, 1986. Each **$19.95** ($21.75 postpaid) from Que Corporation, 7999 Knue Road, Indianapolis, IN 46250.

How to Get Free Software: Alfred Glossbrenner, 1984. **$16.20** postpaid from St. Martin's Press, 175 5th Avenue, New York, NY 10010.

SOFTWARE:

PC-WRITE: Version 2.71. **$16** shareware; **$89** with registration. Quicksoft, 219 1st Ave. #224, Seattle, WA 98109; 206/282-0452.

Reflex: Street price **$99.95**; list **$149.95** from Borland International, Inc., 4585 Scotts Valley Drive, Scotts Valley, CA 95066; 408/438-8400.

Procomm: Free download from B-board for trial purposes; complete package **$50** from Datastorm Technologies, Inc., P. O. Box 1471, Columbia, MO 65205; 314/449-9401 (BBS), 314/449-7012 (humans).

PC-Calc: Version 3.0. Shareware; **$64.95** with registration from Buttonware, P. O. Box 5786, Bellevue, WA 98006; 206/454-0479.

Turbo Lightning: Street price **$69.95**; list **$99.95** from Borland International, Inc. (see **Reflex**).

PC-OUTLINE: Shareware; list **$89.95** from Brown Bag Software, 2155 S. Bascom Ave./ Ste. 114, Campbell, CA 95008; 408/559-4545.

SideKick: Street price **$59.95**; list **$84.95** from Borland International Inc. (see **Reflex**).

TSR Utilities: Shareware; **$10** from Turbo Power Software, 3109 Scotts Valley Drive/Ste. 122, Scotts Valley, CA 95066; 408/438-8608.

Norton Utilities: Version 4.0. Street price **$69.95**; list **$100** from Peter Norton Computing, Inc., 2210 Wilshire Blvd. #186, Santa Monica, CA 90403; 213/453-2361.

SuperKey: Street price **$45.95**; list **$99.95** from Borland International, Inc. (see **Reflex**).

PC-SWEEP: Shareware; contact Sandi and Shane Stump, 1321 Klondike, San Antonio, TX 78245; 512/670-8835.

Fastback: Version 5.15. **$179** from Fifth Generation Systems, 800/225-2775 (in CA: 714/553-0111).

1DIRPLUS: Version 2.01. Street price **$59.95**; list **$100** from Bourbaki, Inc., P. O. Box 2867, Boise, ID 83701; 208/342-5849.

Tools needed to build an XT.

Build Your Own IBM Compatible
(And Save A Bundle)
Aubrey Pilgrim
1987; 208 pp.
$14.95
postpaid from:
TAB Books, Inc.
P. O. Box 40
Blue Ridge Summit,
PA 17214
717/794-2191
or Whole Earth Access

Build Your Own IBM Compatible

You may be ready to save a bundle, but are you ready for an adventure? The scheme is to take cheap parts from Asian manufacturers which are advertised in the backs of computer magazines and assemble them into an IBM knockoff. A lot can go wrong in an instant. I recommend that you read this book first. It'll either convince you that you don't have the needed electronic common sense, or else if you do, it will provide you the key tips for successful construction. Besides becoming the proud owner/builder of a cheap, versatile machine, you'll probably use it more effectively since you know how it works. Your warranty, though, is your fix-it abilities.

An equally wise (though less exciting) choice is to consider the ever-blossoming varieties of already assembled clones for sale at very cheap prices. They are often sold by hobbyists who successfully put together an IBM compatible for themselves and then, seeing a market, charge a minimal amount to assemble another. You pay for the few tricks that they learned the painful way. That's the way I'd go. —Kevin Kelly

Parts and components needed to build an XT:

1. A case, flip top or slide on.

2. A mother board with components installed (would recommend a turbo board with 640 K of memory).

3. A power supply, 130 watt minimum.

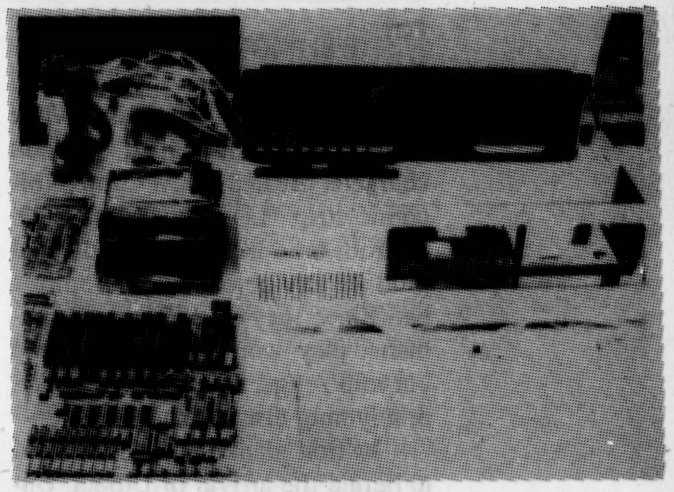
4. A floppy disk drive controller card (or board).

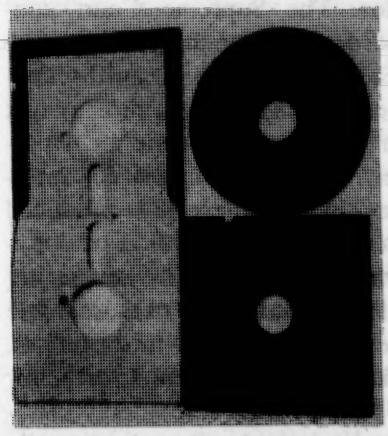
5. One or two floppy disk drives.

6. A monitor card (or adaptor), should be monochrome or color, depending on the type of monitor you buy.

7. A monitor.

8. A keyboard.





A floppy diskette that has been taken apart. Lines representing tracks and sectors have been drawn on the surface.

Cheap IBM Clones

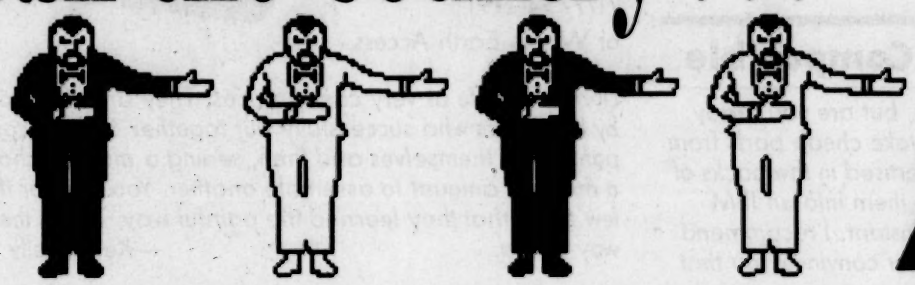
Buy a PC clone locally if at all possible, so you benefit from local servicing on problems. If you need to shop by mail, one of the best buys is from the burgeoning computer company, Whole Earth Access (once again, there's no financial tie to us). They assemble their own line of clones from cut-rate parts, and guarantee the result. Their XT clone, with built-in 20-meg hard disk and monitor, goes for $895(!) postage paid. This is a small-business bargain. Edwin Rutsch, author of ***The IBM XT Clone Buyer's Guide*** *(**WER** #55, p. 99), examined Whole Earth's IBM AT clone, which is a generation better and about twice as expensive as their XT. His comments follow. (Edwin is compiling* ***The IBM AT Clone Buyer's Guide and Handbook****. It'll be $21.95 postpaid from Modular Information Systems, 431 Ashbury Street, San Francisco, CA 94117.)* —Kevin Kelly

The Whole Earth Computer Systems 286 (AT clone) is a close copy of the IBM AT, mimicking not only its power, but also its plainness. A lot of the other clones sport "bells and whistles" which this lacks. However, it is reliable and operates 30 percent faster than IBM's newest computer, the Personal System 2 (PS/2), Models 50 and 60. It is a good-quality product for a clone, at a reasonable, competitive price. A main advantage is that unlike some clone packagers, the company will probably be around for a while to honor their one-year parts and labor warranty. —Edwin Rutsch

Whole Earth Turbo XT-20: IBM compatible; 640K; 20MB hard disk plus single floppy disk drive; B/W monitor. **$895** postpaid from Whole Earth Access.

If Software Companies Ran the Country . . .

by Jay Kinney



THE SHMOO IS COPYRIGHT ©1948, 1959 BY UNITED FEATURE SYNDICATE

THE SHMOO has returned.

You remember the Shmoo, don't you? It was a cute little white colored, squash-shaped cartoon character created by Al Capp in his comic strip "Li'l Abner," in 1948. Shmoos bred like rabbits and could produce any object at the drop of a hat. Since they loved to please humans, they would willingly pump out milk, eggs, filet mignon, caviar, or anything else if requested.

At first glance Shmoos seemed to herald the arrival of Utopia. Unfortunately, a plethora of Shmoos meant that people quit their jobs, stopped paying taxes, and civilization as we know it began to degenerate quickly — or so Al Capp sought to demonstrate in his mildly didactic way. In other words, there *is* such a thing as too much of a good thing.

The great funnies-reading public was not so sure. Shmoos were enormously popular and thousands of Shmoo products were bought and sold before the Shmoo fad ran its course. Al Capp supposedly became so sick of Shmoos that he killed them off and banished them from the strip. They popped up again for another short appearance in "Li'l Abner" ten years later, were killed off again and this time were gone for good.

Or so it seemed until recent rumblings about software piracy in the computer trade press convinced me that the Shmoo has snuck back — in real life this time.

The source of the rumbling is the simple fact that most computer software is nothing more than an array of bits magnetically recorded on thin, plastic floppy disks. This is true of both commercial software (which often retails for hundreds of dollars) and the file disks that store all the information and writing produced by the computer user. That these arrays of bits are easily copied from disk to disk — with a copied disk being virtually indistinguishable from the original — is one of the much-touted selling points for the personal computer revolution.

Where the shmoo-factor comes in and software executives begin to grit their teeth is when a PC user decides to make a copy of a commercially-produced program for a friend. Suddenly there are two programs where there once was one, and there's a good chance that the recipient of the copied disk will never break down and buy his own legitimate copy. This scenario, which is repeated daily all over the world, is the bane of the software industry, which contends it is losing millions of dollars in potential sales through this penny-ante thievery. All sorts of copy-protection methods are in use to prevent software customers from making illegitimate copies, but nearly every protection method can be circumvented with some patience, cleverness, and one of numerous commercially available copying programs.

When similar concerns over rampant copying tore through the music industry a few years back the solution that developed was the levying of a tax on the sale of all blank cassette tapes. The proceeds from this tax are distributed amidst the record companies in compensation for lost income. A bizarre form of corporate socialism, perhaps, but it probably beats having stereo-cops busting through our doors in search of home-recorded audio cassettes.

The advent of affordable VCRs on a mass scale introduced this now-familiar dilemma into the realm of video. The Supreme Court concluded in this case that folks at home could legally make personal videotapes of programs and movies that were broadcast over the air. However, making unauthorized duplicates of commercially produced video tapes is a violation of copyright and punishable by law, as big FBI notices at the start of most movie tapes remind us. (That this, in effect, makes the FBI into an enforcer for the Mafia which is reputedly knee-deep in the video-porn business is just one of life's little ironies, I suppose.)

With software the issue at hand is hazier still, since there is no single agreement on matters as elementary as defining exactly what software is. On the one hand, most software programs consist of thousands of lines of coded instructions which tell one's computer to perform in a certain manner. This code, which is written by programmers and consists of a mixture of words, letters, and numbers, is covered by the same copyright laws that apply to other published material.

On the other hand, the words, letters and numbers that make up software code are generally combined into algorithms that describe mathematical procedures. Considered separately each algorithm can no more be taken as private property than can phrases like "2+2=4" or "$E=mc^2$." Among programmers an elegant algorithm or set of algo-

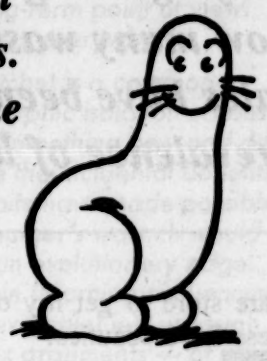
Jay Kinney, contrary to superficial appearances, does not advocate software piracy. He just likes to stir things up. —Kevin Kelly.

rithms that address common programming tasks are likely to become community property, and justifiably so. Definitive mathematical answers to recurring questions have traditionally become the property of everyone since they represent an advance in general human knowledge. Be that as it may, unique sequences of coded algorithms have tended to fall under the rubric of intellectual property fostering their controlled dissemination and retailing by the individuals or corporations that own them. In an information economy it is information that becomes the most precious commodity.

Where things begin to get weird, however, is with the subtle redefining of both economic and wider social relations that the present software situation introduces. This redefinition, which is subtle yet far-reaching, is almost never acknowledged by the software industry or computer press despite the fact that it is at the root of the so-called software piracy problem.

In making copies of software programs for their friends, thousands of normal citizens have not suddenly become moral degenerates and lawless nihilists. Rather, they've been resisting the encroachment of a new form of property relations which runs counter to common sense and the best human instincts. In their desire to have their cake and eat it too, software companies are actually lobbying for a new form of legalistic capitalism whose overt operating principle would be *Caveat Emptor*.

In making copies of software programs for their friends, thousands of normal citizens have not suddenly become moral degenerates and lawless nihilists. Rather, they've been resisting the encroachment of a new form of property relations which runs counter to common sense and the best human instincts.



What would life be like if software companies ran the country? Perhaps the following little drama may offer a clue:

Having recently noticed that the bushes outside your living room window have grown unruly you decide to trim them. Your old hedge-clippers having long since succumbed to rust, you decide to run over to the nearest hardware store and buy a new pair. At the store the following dialog ensues with the eager salesman.

"How are these hedge-clippers? Pretty good?"

"Oh yes sir! They are the best on the market. They are twice as sharp as any other clippers and are greased at the joint to work faster than any clippers ever made!"

"Well, that sounds pretty impressive. How much are they?"

"Just $450.00, sir!"

"Hmm. A bit pricey perhaps. I presume they have a good warranty?"

"The best, sir! You'll be excited to know that their warranty offers absolutely no guarantee that they will perform as described. But that's not all! Should you be dissatisfied with these clippers you cannot get your money back! And best of all, you cannot legally resell these clippers to anyone else! In fact, your $450.00 merely buys you a license to use these clippers. Should you violate any of the other terms of the warranty contained in this sheet of tiny print, ownership of the clippers will revert to the manufacturer and you will be liable to prosecution."

"By jove, that sounds like the best deal I've been offered since I purchased the Brooklyn Bridge a few years back! I'll take them!"

Back home again you set out to trim the bushes. Things are going along smoothly until the clippers let out an unexpected series of beeps and collapse in upon themselves. Consulting the 100-page manual which you had been hoping to ignore up 'til now you discover that you may have run into a "bug" which resides in this series of clippers. Phoning the manufacturer you discover that by sending back the clippers along with an additional $25 they will send you an updated pair of clippers without the "bug". Allow 6 to 8 weeks for delivery.

This is less than thrilling but you have little choice it seems, so you send in the clippers along with a check and wait a couple of months. Once the new clippers arrive you return to trimming bushes that have begun looking like mutant growths from Venus. Within an hour or two the job is done and you are about to go hang up the clippers in the garage when your neighbor, Joe, stops by.

"Hey hey! New clippers I see!"

"Don't ask."

"Eh? I was thinking that I ought to trim those shrubs of mine that have been hanging over onto your driveway for months now. If you'll lend me your new clippers I ought to have them polished off in a jiffy. Okay?"

"Sorry, Joe. But it says in my clipper-owner agreement that went into effect the moment I began using the clippers that these clippers can't be used by anyone besides me. If I let you use them we'll both be taking food out of the mouths of the company that makes these clippers and turning ourselves into felons in the process!"

"Gee, sorry I asked! But, hey, what if I buy the clippers from you for five cents and when I'm done with them sell them back to you for five cents? Surely there's no harm in that?"

"I'm afraid there is, Joe. Any change in ownership violates the warranty and I'd never be able to obtain a future update if the clippers unexpectedly collapse. Besides, I don't really "own" these clippers I only have the right to "use" them and that right is non-transferable. C'mon, be a good American and buy your own pair!"

"Thanks for setting me straight, pal! If it weren't for honest citizens like you I can see how we'd rapidly slip into a state of criminal anarchy with uncontrolled sharing of commodities! Well, I'm off to the hard-

When was the last time you saw Maytag wringing their hands over how many washing machine sales have been lost due to the prevalence of laundromats?

ware store to get my own pair of these $450 beauties!"

While most software companies may howl about the illegality and injustice of unauthorized copying of programs — a complaint that is not entirely without merit — they are simultaneously engaged in an anti-consumer campaign of guerrilla warfare worthy of the Contras at the Nicaraguan border. Computer software (and hardware) warranties are among the least protective in the marketplace; in fact, they are mostly legal documents designed to disengage the companies from any but the most minimal responsibilities to their customers.

The disjunction between the claims of most software advertising and the terms of the actual license agreements is almost total. Note the following verbatim quote from a typical agreement: *"Limited Warranty: The program is provided "as is" without warranty of any kind. The entire risk as to the results and performance of the program is assumed by you. Should the program prove defective, you (and not [Software company name] or its dealers) assume the entire cost of all necessary servicing, repair or correction. Further, [company name] does not warrant, guarantee or make any representations regarding the use of, or the results of the use of, the program in terms of correctness, accuracy, reliability, currentness, or otherwise; and you rely on the program and results solely at your own risk."*

Were most of us to be handed such a "limited warranty" for any other product or industry we'd consider ourselves the victims of a crass practical joke or worse. Yet this is the norm with software companies.

In similar fashion, the companies' heated opposition to shared ownership — or just plain *sharing* — of programs is a new wrinkle in the evolution of capitalism. The advent of private property at the beginning of capitalism's reign tended to gobble up pre-capitalist forms of property such as the village commons or peasant communal land, but it still allowed for numerous grey zones of shared property use. Laundromats, taxi companies, mass transit, furniture rental firms, and many other enterprises are all predicated on the assumption that it is both socially valuable and personally profitable to provide access to products and services that people might not be able to afford individually.

When was the last time you saw Maytag wringing their hands over how many washing machine sales have been lost due to the prevalence of laundromats? And despite the apparent fact that a Hertz car that is rented out to one hundred patrons in the course of a year has, in effect, been "copied" a hundred times, there have been no overt moves by GM to shut down Hertz. However, firms that rent software are coming under increasing fire from software companies whose new model for consumption seems to be "one person per commodity."

My observations have led me to conclude that most unauthorized copies of programs are made on the spur of the moment between friends and more often than not are tried a few times out of curiosity and put on the shelf to gather dust (or simply erased altogether). Since this is the moral equivalent of taking a friend's new car out for a spin most people don't think twice about it. Estimates of massive software sales losses in such cases are largely specious.

Where software publishers may have a legitimate gripe is in the practice at some of our biggest corporations of buying one copy of a program, such as Lotus 1-2-3, and making dozens of copies for clerks in dozens of departments, who then use the program daily. This *does* represent a significant loss of income in a context far from that of friendly disk-sharing over the backyard fence.

While the computer industry may cast itself in the roll of staunch protector of private property — particularly its own — it has few misgivings about profiting from other kinds of unauthorized copying. The burgeoning growth of image digitizers and OCRs (optical character readers) which allow anyone to capture the pictures or words of someone else onto disk, regardless of copyright, is one instance. Commercial on-line databases that are accessible from any modem-equipped computer represent another. This immediate access to others' information is the stuff with which recent dreams of an amazing computerized future have been spun. And it does have its allure.

As our culture increasingly moves from print to electronic media — with computers as central processing and distribution channels — all writing, images, coding, or other forms of "information" will begin to shift to a new realm of social ownership where old concepts of property and copyright will be turned inside out. This trend is inherent in the technology itself.

Attempts to enforce the old forms of ownership and profit-extraction in the face of this technological drift entail retooling corporations into autonomous intelligence agencies while simultaneously redefining the better human impulses such as generosity and sharing to be criminal acts. One recently developed copy-protection scheme which illustrates this mentality at work would cause destructive software "worms" to be released into one's computer if one tried to make an unauthorized copy of the protected disk. These worms could pop up unexpectedly at later dates randomly destroying other unrelated data and software. Welcome to the era of software publisher as sniper!

Yes, the Shmoo has returned and is turning Silicon Valley into the Valley of the Shmoon, despite the loud protests and desperate schemes of the software companies. For, you see, software is shmooware and it loves to reproduce. ■

The Tomorrow Makers

Deep robotics, deep shivers.

Fjermedal has done the formidable footwork of staying up countless nights working, scheming and speculating with most of the cutting-edge robot fanatics in the labs at Carnegie-Mellon, MIT, Stanford, Thinking Machines Corp., and on and on — a fine comprehensive sweep. His report on work in Japan is a scoop and fittingly closes the book, since it proves that some of the wilder speculation he begins with is already stalking about in Japan, like some ominous, humorous Transformer toy, just barely still a plaything.

For grasping what technology is rapidly bringing by way of exploding human bodies and minds into new configurations, ***The Tomorrow Makers*** *blends nicely with Eric Drexler's* ***Engines of Creation*** *(**WER** #53, p. 83) and my own* ***The Media Lab*** *(p. 81). This stuff is even more interesting than gene-splicing, and more thrilling, both for promise and menace. For example: serious immortality, soon.* —*Stewart Brand*

•

Will the robots recall that we were their creators?

And if they do, how much will we be able to trade on this? Will there be a sentimentality about this sense of origin? Initially we could program this in, but later, as the robots begin propelling their own evolution, will this be a memory deemed worthy of retention? Will they not remember who taught them to play, who blessed them with the need to frolic?

•

Tachi has succeeded with his vision system. It truly gives you the feeling that you are *inside* the robot, looking at the world from within its body, not your own. This is possible because the operator isn't just looking at a television monitor; his head is encased in a black-velvet-lined box. Within this box are two television receivers, one for each eye. The receivers are gauged so that the image that is reflected against the retina of each eye is exactly the same as if you were looking at the world unaided. Further, every movement of your head is duplicated on the robot, where two precisely placed video cameras transmit a human range of what is seen.

The result of this is that when I went into the laboratory and strapped my head inside the black box, it was as if I were seeing with my own eyes. The depth and scope of human vision was so completely reproduced, and the color was so clear, that it was at first unsettling and then a wild visual delight. . . .

Someone in the laboratory went over to the robot-mounted cameras and swung them around so that they focused on me. The walls spun during the maneuver, and then when the motion stopped and I was looking at myself, the out-of-body experience began. It was as if I were standing a few feet away *in another body* looking at myself. I moved my head to look up and down and even to look away. And when I looked away from that person who was me, it was as if that body were just another passerby. . . .

"Are you here?" Tachi laughed. "Or are you there? Where is your body?"

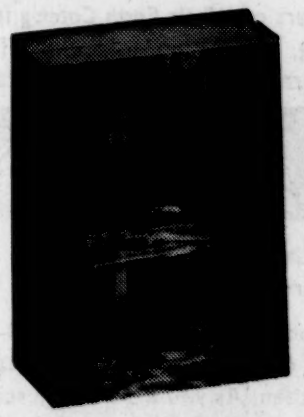
The Tomorrow Makers
Grant Fjermedal
1986; 272 pp.
$18.22
postpaid from:
Macmillan Publishing Co.
Front & Brown Streets
Riverside, NJ 08075
800/257-8247
or Whole Earth Access

The River That Flows Uphill

Neurobiologist William Calvin was part of several rafts full of scientists on a boat trip down the Colorado River through the Grand Canyon. Their conversations — relaxed, witty, skillfully rendered — teach as much about river rafting, Southwest anthropology, and respect for Nature as about neurophysiology, biology and evolution. The Grand Canyon almost forces a broad, long-term point of view: the marks of geological evolution are everywhere.

The concept of the evolutionary ratchet is a common thread throughout the book: geographic isolation causes speciation, conserving new traits. Something new and different results. Particularly tasty are the incidental benefits of natural selection that survival traits have made possible. Feathers let birds fly, though the feather's warmth would have been sufficient to give them an evolutionary edge. In people, the evolution of the brain (learning sequencing operations to hunt and throw, for example) lets us laugh, make music, and produce complex arguments — of which this book is a fine example. It's good science, well presented. Most importantly, it illuminates that peculiar function of the human brain: to be conscious of consciousness.
—*Matthew McClure*

The River That Flows Uphill
William H. Calvin
1986; 528 pp.
$12.95
($15.95 postpaid) from:
Sierra Club Store Orders
730 Polk Street
San Francisco, CA
or Whole Earth Access



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Our whole civilization is one of those changes in kind, not just the genetic-engineering aspect of it. The dangers of genetic farming are very much those of our whole farming and pharmaceutical industries: namely, that we don't know what will happen down the road as the new pesticides and drugs perturb the system, because our culture is still so ignorant of ecology, of how the elements of the environment hang together and buffer one another. Unless we somehow limit our pollution and our population growth, the earth may fall apart on us as we ruin one carefully-wrought ecosystem after another.

•

"We neurobiologists want to know not only what the 'brain programs' are, but how the brain machinery operates them. The Artificial Intelligence folk figure that if they can postulate a program that seems to do the trick, then they can build a hardware computer that will mimic the actions of the mind, running the same program using silicon chips rather than wet and unreliable nerve cells," I replied, pausing for a drink from my canteen.

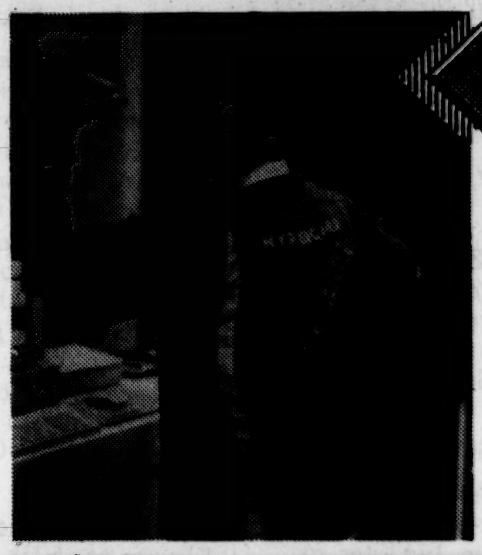
"We neurobiologists work up from the bottom much of the time, trying to fathom the computation processes of the building blocks. We're constantly coping with parallel processing, a notion which is still novel in AI. I happen to think that the AI types are missing the boat, by trying to ignore the unreliable nature of the individual cells, the real brain's computing elements. Instead of trying to work around jittery cells by using reliable pigeonhole computers, unreliable cells should be seen as the essence of the brain's way of doing things, just as sex's institutionalized randomness is the essence of how evolution has done more and more elaborate things. But philosophically, both neurobiologists and the AI folk start from the premise that the mind can be explained, that it isn't beyond understanding. And most of us would assume that mind is going to emerge from a lucky combination of more elementary 'dumb' processes."

WHOLE EARTH HYPERLOG:

BEGINNING A COMMUNICATION MEDIUM CALLED STACKWARE

ONE AFTERNOON IN EARLY WINTER, 1986, we got a phone call from a project evangelist at Apple Computer, Inc. Seems they had an exciting new technology nearly perfected, and would we like to join them in trying it out on the *Whole Earth Catalog*? We arranged a meeting, saw what they had, and decided it matched something we had wanted to do for a while. We set up a large design meeting a few weeks later.

Present at the brainstorming were Stewart Brand, Kathleen O'Neill (our graphic designer), Fabrice Florin (video artist who filmed "Hackers"), Alan Kay (Apple Fellow and computer visionary), Bill Atkinson (inventor of MacPaint, the granddaddy of personal computer graphics programs), the enthusiastic Apple "Multimedia And Beyond" research gang (Mike Leibhold, Tim Oren, Ted and Carol Kahler, Steve Wyre and Andy Poggio), and myself. The goal of the project was modest: to advance 500 years of book evolution, and improve 19 years of *Whole Earth Catalog* fine tuning, by using a new kind of software masterminded by Bill Atkinson, called



Bill Atkinson, HyperCard Bowlmaster, at product's roll-out.

HyperCard (it was actually named WildCard at that time).

The basic card.

The model for HyperCard is the 3-by-5 card. A card is represented by a Macintosh screen. As you flip through screens (cards), you read them one after another, as if they were in a stack. Cards can hold any kind of information you want, in any format you want, including pictures. Rather than rest inertly, as on a Rolodex, information on a HyperCard can be actively linked to any other point on any other card. Those linking spots can be a word, a bunch of words, or a picture. When your cursor touches that spot, it brings forth the card (screen) that it is linked to. The links form a thread through a "stack" of cards. You weave through a stack, jumping from card to card, idea to idea, choosing your own path by touching on the items you are interested in, endlessly discovering new levels, or deliberately aiming toward a desired card.

Your HyperCard Rolodex, for instance, might have one card for every individual. You could link their telephone number so that it dials the number. You could link their address to a small map on another card to show how to get to their house. And the map of that town might be linked to several other names as well. You would then have an interactive Rolodex giving you as much information as you wanted each time.

Another way to imagine it would be to think of a book that had footnotes that appear only when you clicked (touched the cursor) on a passage you wanted to know more about. It would carry you to interesting details, which might themselves have footnotes which are footnoted, and so on. Any date might bring you to a fuller account of what else was happening then by clicking on it, or a name might summon a biography. Commentaries, references, citations could all be connected to appear when needed. This vision is called hypermedia.

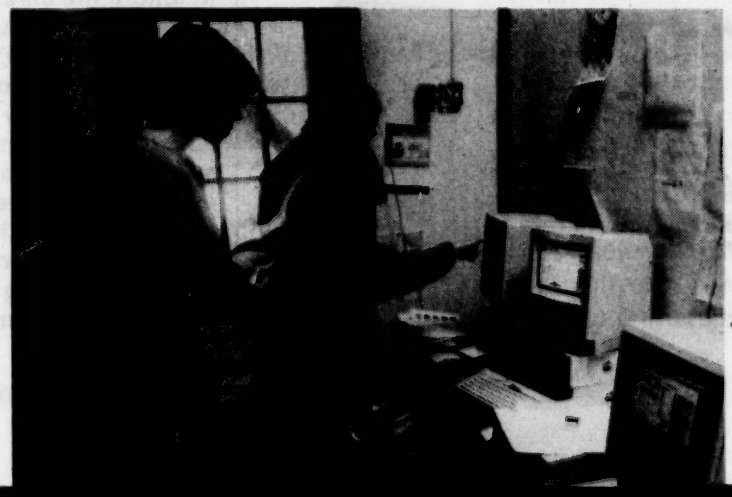
Hypermedia as theory is not very new, and even as fact has several antecedents including a legendary working version known as Xanadu, hatched by maverick Ted Nelson (author of *Computer Lib/ Literary Machines*, an underground computer classic in 1974, about to be reprinted by Microsoft Press). Atkinson's HyperCard genius is its card metaphor and its compression into the visual environment of Everyman's Macintosh. Like the Swiss Army knife, it's a tool with low threshold, high ceiling — easy to learn, hard to outgrow — a new instrument that will muster new applications.

The obvious application to all of us was to try a new kind of book, and a better kind of catalog, that would reward both browsing and searching, thus reinforcing the kind of serendipitous learning the *Whole Earth Catalogs* promoted. HyperCard was the first computer utility that looked like it could handle that.

Softwarewise, HyperCard has two faces. On one side, it is a versatile method to construct a database that you can navigate through visually. That makes it reasonable to construct large encyclopedias of wildly various information, like an electronic *Whole Earth Catalog*. On the other side, HyperCard holds a subset wonder called HyperTalk. Co-written by Dan Winkler, HyperTalk is a brilliant, almost conversational programming language that makes creating Macintosh programs possible for ordinary mortals. HyperCard, then, provides amateurs the tools to fiddle under the hood of the elegant Macintosh interface.

Even so, the brief time we had to grow the *Catalog* on hypermedia demanded professional expertise. There was no one expert on HyperCard; we were the guinea pigs. Half of the project's goal was to measure how well HyperCard did on a really large scale. The scope of the *Catalog*, and its natural card-size chunkiness, made it the ideal trial from Apple's viewpoint. So Apple funded us to tell them what we could learn putting the *Whole Earth Catalog* into HyperCard. We had one month. We were to demo it at HyperCard's premier in Boston, at the huge MacWorld Expo.

Our Compugraphic typesetting files were translated into Macintosh text by a local typesetting outfit. The text of two thousand items in the *Essential Whole Earth Catalog* was reduced to a fistful of 3½" disks. Tim Oren, a crack-



Computer nerds get art lessons from K. O'Neill, art director of the Learning Disc.

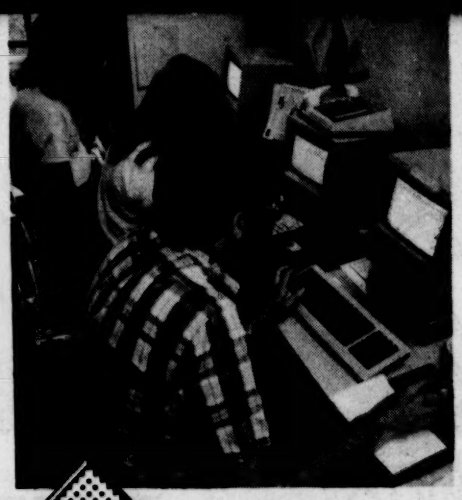
erjack programmer from Apple, devised a HyperTalk script to cruise along the text file in the manner of RNA and clip off each item as an individual unit, while removing the old typesetting codes. Using two other jigs he dubbed "Scaffolding" and "The Dismantler" he automated much of the process of dishing out the *Catalog* text into cards.

We used a Sony Pro 8 8mm camcorder (p. 122) connected to a MacVision box to digitize illustrations from the items in the *Catalog*. MacVision (Koala Technologies, 269 Mount Herman Rd., Scotts Valley, CA 95066; 408/438-0946) converts a video scan into MacPaint files. Once in MacPaint format, they were pasted into "cards" by a small team of rapidly experienced cardpasters.

Music and sounds are one way the Whole Earth hyperlog is better than the paper *Catalog*. In our reviews of music-by-mail catalogs we include pictures of albums they carry. Click on the cover and a ten-second sample of music erupts out of the Macintosh. (The built-in Mac speaker is so-so, but if you plug a larger external speaker in the back, you'll get fair sound.) In the field guide reviews we excerpt samples from Peterson's guide to birds and bird songs. Click on Peterson's drawing of a Mountain Chickadee and you'll hear its call. Compare that to the similar-sounding and -looking Black-Capped Chickadee? Okay, do it again.

Bird songs, music, and book readings were recorded on tape cassettes. A software/hardware duet called Soundcap (software) and MacNifty (hardware) captured the playback from a tape deck and deposited the sound into a HyperCard stack. (Sound eats up bytes. You can only fit about one minute's worth of sound onto a Macintosh 3½" floppy.) The music and Kathleen O'Neill's soft art design sense provide a richness to its operation that makes it almost feel like it's NOT on a computer.

It was a hit at the MacWorld show, eliciting brief but prominent mentions in the major papers and trade journals (*Wall Street Journal, L.A. Times, MacWorld, Infoworld*). Much credit goes to others I haven't mentioned yet. Keith Jordan, Whole Earth's circulation director, was exactly the organized personality we needed to keep all the linked parts from becoming a mess of spaghetti. Chief Stackmaster Hank Roberts (usually proofreader on the magazine) made a religion of backing up everything twice, always to our benefit. David Burnor, Elaine Richards, Robin Ramsey, and Pat Oren became the world's first cardpasters. Other staff pitched in on the laborious process of digitizing photos: Don Ryan, Dick Fugett, James Donnelly. By the day of the demo we had re-created about one-fifth of the old *Catalog*, some several thousand completed cards.



Assembly (on-)line: Hank Roberts, Pat Oren, Tim Oren, computing.

The conclusion will be a massive databank that will fit onto a plastic CD-ROM — a compact disk that will commune with your Macintosh. It'll be released when there is hardware to run it (there's none yet). At this point we're calling it the Whole Earth Learning Disc. It will be a periodical of sorts, thriving on a circuit of feedback and suggestions from users. I imagine that some of this traffic will come via The WELL's teleconferencing system (415/332-4335 for info).

HyperCard will be a medium of communication. Within a week after it was introduced, The WELL had a raging conference on the topic. A prime function there is the Stackware Exchange, where user-written stacks of cards are swapped, showcased, and improved upon. Early stackware will have some of the untamed innovation that early BASIC computer programs had. The WELL confronts the possibilities with a topic called "What can you do with Hypercard?"

Some of the things I imagine are: incredibly complex adventure games, self-directed classroom courseware, interactive shopping catalogs, pictorial spreadsheets, and ultimate clip-art files. Enough, anyway, to get going. ■

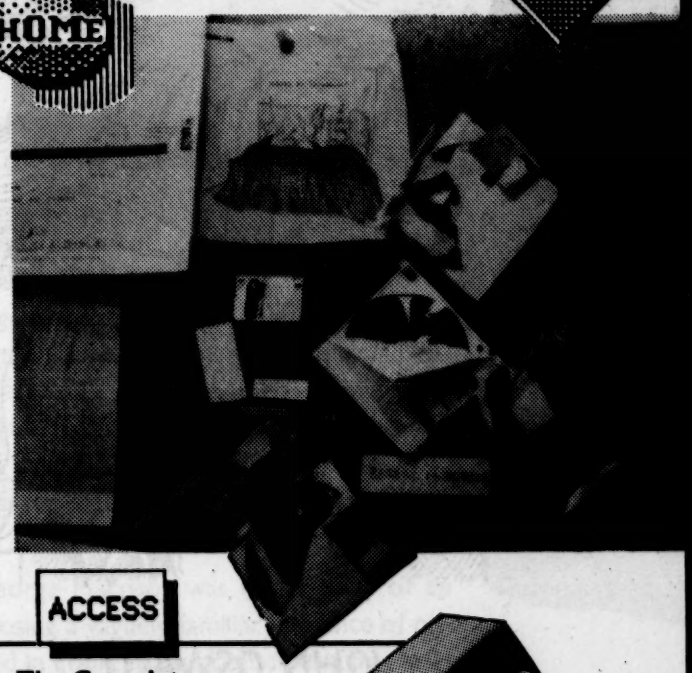
HYPERCARD

Skinny Macs, even Fat Macs, won't quite do for this musclebound program. You'll need a Hunk Mac (a Plus or better) with at least 1 meg RAM to run things smoothly. Very best is a setup with a hard disc. There are two official sources for HyperCard. It's bundled free with all new Macintoshes, or it can be bought for $49 from a local Apple dealer.

—Kevin Kelly

With no margin for error, any fla floppy disks were pinned to the Floppy Graveyar

HOME



ACCESS

THE COMPLETE HYPERCARD HANDBOOK

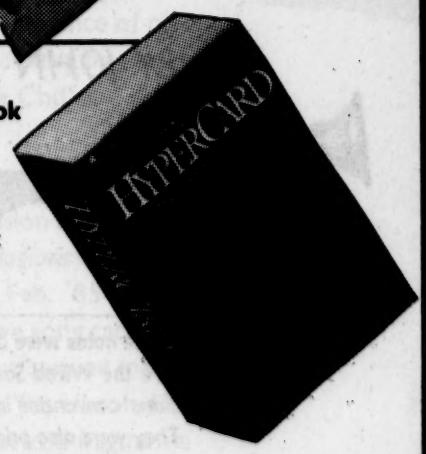
Some software programs have all the luck. On the day HyperCard was released, an equally groundbreaking guidebook to it was published in tandem. Like HyperCard itself, it is thorough and deep. It's a massive, hefty tome of 700 pages, completely fluff-free.

It exhaustively treats the mechanics of making cards; assembling them into "stackware;" creating links; and writing instructions in HyperTalk. Even if you don't usually use paint programs, you'll find yourself creating graphics in HyperCard regularly. The paint options are therefore covered in depth. As we worked on the Whole Earth Learning Disc we picked up a number of tips from the *Handbook* we hadn't known about. Not a reference book per se, the *Handbook* does its best job illustrating the conceptual innovations introduced by HyperCard. Notions like "stackware" (stacks of cards that are exchanged), "buttons" (linking hot spots), and "backgrounds" (the layers of information on a card) are all illuminated into clarity.

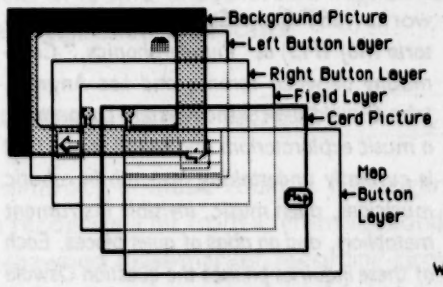
I primarily use those Macintosh programs which stick with me if I don't ever open the manual. But HyperCard, with its tools-for-making-tools structure, is simply one Macintosh program that you won't be able to unfold fully without a supplemental help book. For the immediate future, this is the book to get.

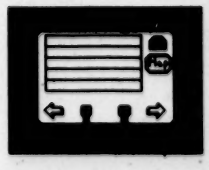
—KK

The Complete HyperCard Handbook
Danny Goodman
1987; 695 pp.
$29.95
($31.45 postpaid) from:
Bantam Books
414 E. Golf Road
Des Plaines, IL 60016



What the Author Sees





What the Browser Sees

BETTERED BY THE BORROWER

THE ETHICS OF MUSICAL DEBT

BY JOHN OSWALD

These notes were delivered as an address before the Wired Society, an electronic musicians' convention in Toronto, February 1986. They were also printed in the journal Musicworks *(1087 Queen Street W., Toronto, Ontario M6J 1H3) as "Plunderphonics." Commuting between Toronto and Los Angeles, John Oswald directs the Mystery Laboratory, a music exploratorium and sound studio that is currently undertaking research in robotic musicians, alien music, invisible instrument metaphors, and an atlas of quiet places. Each of these inquiries presses the question Oswald asks here: "What part of music is created by humans, and what part by the instrument?"*

—Kevin Kelly

• A record of "plunderphonics" — blatantly borrowed music and sounds — will be available soon. For more information, contact the author at Box 727, Station P, Toronto, Ontario M5S 2Z1.

MUSICAL INSTRUMENTS PRODUCE sounds. Composers produce music. Musical instruments reproduce music. Tape recorders, radios, disc players, etc., reproduce sound. A device such as a wind-up music box produces sound and reproduces music. A phonograph in the hands of a "hip hop/scratch" artist who plays a record like an electronic washboard with a phonographic needle as a plectrum, produces sounds which are unique and *not* reproduced — the record player becomes a musical instrument. When tape recorders, basically designed for documentation and reproduction, became available in the '40s, a few individuals, like Pierre Schaeffer in France, began transforming the recordings, distorting them into something new; producing music through them as if the tape recorders were magnetic violins. Even earlier, composer John Cage was specifying the use of radios and phonographs as musical instruments.

Quite often the sounds found emanating from phonographic and radio musical instruments have some prior ownership. These previous creators (including those who give credit to a divine source) have copyright: a charter of control over the commercial and moral implications of reproduction. But some sources continue to maintain a "finders-keepers" ethic.

THE RIGHT OF COPY

In 1976, ninety-nine years after Edison went into the record business, the U.S. Copyright Act was revised to protect sound recordings for the first time. Before this, only written music was considered eligible for protection. Forms of music that were not intelligible to the human eye were deemed ineligible. The traditional attitude was that recordings were not artistic creations, but "mere uses or applications of creative works in the form of physical objects."

Musical language has no punctuation device equivalent to literature's quotation marks. Jazz musicians do not wiggle two fingers of each hand in the air, as lecturers sometimes do, when cross-referencing during their extemporizations.

For instance, Charles Ives' Symphony No. 3 was published and copyrighted in 1947 by Arrow Music Press Inc. That the copyright was assigned to the publisher instead of the composer was the result of Ives' disdain for copyright in relation to his own work, and his desire to have his music distributed as widely as possible. He at first self-published and distributed volumes of his music free of charge. In the postscripts of *114 Songs* he refers to the possessor as the *gentle borrower.*

Later in his life Ives did allow for commercial publication, but always assigned royalties to other composers.

Ives admired the philosophy of Ralph Waldo Emerson who, in his essay "Quotation and Originality," said, *What you owe to me — you will vary the phrase — but I shall still recognize my thought. But what you say from the same idea, will have to me also the expected unexpectedness which belongs to every new work of Nature.*

The real headache for the writers of copyright has been the new electronic contrivances, including digital samplers of sound and their accountant cousins, computers. The electronic brain business is cultivating, by grace of its relative youth, pioneering creativity and a corresponding conniving ingenuity, "the intimate cultural secretions of electronic, biological, and written communicative media.[1]"

"BLANK TAPE IS DERIVATIVE, NOTHING OF ITSELF[2]"

While the popular intrigue of computer theft has inspired cinematic and paperback thrillers, the robbery of music is restricted to elementary poaching and blundering innocence. The plots are trivial. The Disney cable channel accuses Sony of conspiring with consumers to let them make unauthorized Mickey mice by taping TV broadcasts on videocassette.

The dubbing-in-the-privacy-of-your-own-home controversy is actually the tip of a hot iceberg of rudimentary creativity. After decades of being the passive recipients of music in packages, listeners now have the means to assemble their own choices, to separate pleasures from the filler. They are dubbing a variety of sounds from around the world, or at least from the breadth of their record collections, making compilations of a diversity unavailable from the music industry, with its circumscribed policy of only supplying the common denominator.

Former Beatle George Harrison was found guilty of an indiscretion in choosing a vaguely familiar sequence of pitches. He was nailed in court for subconsciously plagiarizing the 1962 tune "He's So Fine" by the Chiffons in his song "My Sweet Lord" (1970).

Yet the Beatles are an interesting case of reciprocity between fair use and the amassing of possession and wealth. *"We were the biggest nickers in town. Plagiarists extraordinaire,"* says Paul McCartney (*Musician*, Feb. '85 p. 62). He owns one of the world's most extensive song catalogs, including a couple of state anthems. John Lennon incorporated collage techniques into pieces like "Revolution #9" which contains dozens of looped unauthorized fragments taped from radio and television broadcasts.

THE COMMERCE OF NOISE

The precarious commodity in music today is no longer the tune. A fan can recognize a hit from a ten-millisecond burst. One studio-spawned mass-market recording firm called the Art of Noise strings atonal arrays of timbres along an always inevitable beat — the melody is often retrofitted.

Singers with *original* material aren't studying Bruce Springsteen's melodic contours; they're trying to *sound* just like him. And sonic impersonation is quite legal. While performing rights organizations continue to farm for proceeds to tunesters and poetricians, those who are really shaping

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1. This is Chris Cutler's poignant phrase, from *File Under Popular* (November Books, 1985), which also includes a good analysis of attempted definitions of popular music:
There can be no such thing as a finished or definitive piece of music. At most there could be said to be "matrices" or "fields." Consequently there is also no element of personal property, though there is of course individual contribution." (pp. 133-134)

2. Said by David Horowitz of Warner Communications (from "The War Against Home Taping," *Rolling Stone*, Sept. 16, 1982, p. 62).

the music — the rhythmatists, timbralists and mixologists under various monikers — have rarely been given compositional credit.

I found this comment on PAN, a musicians' computer network bulletin board, during a forum in January '86:

"Various DX7 programmers have told me that they 'bury' useless data in their sounds so that they can prove ownership later. Sometimes the data is obvious, like weird keyboard scalings on inaudible operators, and sometimes it's not, like the nonsense characters (I seem to recall someone once thought they were Kanji) in a program name. Of course, any pirate worth his salt would find all these things and change them . . . Synth programmers are skilled craftspeople, just like violin makers, so if they go to the trouble of making new and wonderful sounds that other people can use, they should be compensated for their efforts. Unfortunately it's not as easy as just selling the damn violin."

THE CROSS-REFERENCING BLUES

Musical language has an extensive repertoire of punctuation devices but nothing equivalent to literature's " " quotation marks. Jazz musicians do not wiggle two fingers of each hand in the air, as lecturers sometimes do, when cross-referencing during their extemporizations, as on most instruments this would present some technical difficulties.

Without a quotation system, well-intended correspondences cannot be distinguished from plagiarism and fraud. But anyway, the quoting of notes is but a small and not significant portion of common appropriation.

Am I underestimating the value of melody writing? Well,

Within an environmentally imposed limited repertoire of possessions a portable disco may have a folk music potential exceeding that of the guitar.

I expect that before long we'll have marketable expert tune-writing software which will be able to generate the banalities of catchy permutations of the diatonic scale in endless arrays of tuneable tunes, from which a not-necessarily-affluent songwriter can choose; with perhaps a built-in checking lexicon of used-up tunes which would advise Beatle George not to make the same blunder again.

In his speculative story *Melancholy Elephants*[3], Spider Robinson writes about the pros and cons of rigorous copyright. The setting is half a century from now. The story centers on one person's opposition to a bill which would extend copyright to perpetuity. In Robinson's future, composition is already difficult, as most works are being deemed derivative by the copyright office. The Harrison case is cited as an important precedent.

"Artists have been deluding themselves for centuries with the notion that they create. In fact they do nothing of the sort. They discover. Inherent in the nature of reality are a number of combinations of musical tones that will be perceived as pleasing by a human central nervous system. For millennia we have been discovering them, implicit in the universe — and telling ourselves that we 'created' them."

HANDS-ON LISTENING

Sounding utensils, from the *erh-hu* to the *Emulator*, have traditionally provided such a potential for varied expression that they have not in themselves been considered

3. From *Melancholy Elephants* by Spider Robinson (Penguin Books, 1984).

musical manifestations. This is contrary to the great popularity of generic instrumental music ("The Many Moods of 101 Strings," "Piano for Lovers," "The Trucker's DX-7," etc.), not to mention instruments which play themselves, the most pervasive example in recent years being preprogrammed rhythm boxes. Such devices, as found in lounge acts and organ consoles, are direct kin to the juke box: push a button and out comes music. J.S. Bach pointed out that with any instrument "all one has to do is hit the right notes at the right time and the thing plays itself." The distinction between sound producers and sound reproducers is easily blurred, and has been a conceivable area of musical pursuit at least since John Cage's use of radios in the Forties.

Just as sound producing and sound reproducing technology become more interactive, listeners are once again, if not invited, nonetheless encroaching upon creative territory. This prerogative has been largely forgotten in recent decades: gone are the days of lively renditions on the parlor piano.

Computers can take the expertise out of amateur music-making. A current *music-minus-one* program retards tempos and searches for the most ubiquitous chords to support the wanderings of a novice player. Some audio equipment geared for the consumer inadvertently offers interactive possibilities. But manufacturers have discouraged compatibility between their amateur and pro equipment. Passivity is still the dominant demographic. Thus the atrophied microphone inputs which have now all but disappeared from premium stereo cassette decks.

STARTING FROM SCRATCH

As a listener my own preference is the option to experiment. My listening system has a mixer instead of the one-choice-only function of a receiver; an infinitely variable-speed turntable, filters, reverse capability, and a pair of ears.

An active listener might speed up a piece of music in order to more clearly perceive its macrostructure, or slow it down to hear articulation and detail more precisely. One might trace "the motifs of the Indian raga Darbar over Senegalese drumming recorded in Paris and a background mosaic of frozen moments from an exotic Hollywood orchestration of the 1950s, a sonic texture like a 'Mona Lisa' which, in close-up, reveals itself to be made up of tiny reproductions of the Taj Mahal.[4]"

During World War II concurrent with Cage's re-establishing the percussive status of the piano, Trinidadians were discovering that discarded oil barrels could be cheap, available alternatives to their traditional percussion instruments which were, because of the socially invigorating potential, banned. The steel drum eventually became a national asset. Meanwhile, back in the States, *scratch* and *dub* have, in the eighties, percolated through the black American ghettoes, for perhaps similar reasons. Within an environmentally imposed limited repertoire of possessions a portable disco may have a folk music potential exceeding that of the guitar. Pawned and ripped-off electronics are usually not accompanied by users' guides with consumer warnings like "this blaster is a passive reproducer." Any performance potential found in an appliance is often exploited.

Referring to DJ Francis Grosso at the Salvation Club in New York in the mid-seventies, Albert Goldman writes in *Disco* that "Grosso invented the technique of 'slip-cueing:' holding the disc with his thumb whilst the turntable whirled beneath, insulated by a felt pad. He'd locate with an earphone the best spot to make the splice then release the next side precisely on the beat. . . . His tour de force was playing two records simultaneously for as long as two minutes at a stretch. He would super the drum break of 'I'm a Man' over the orgasmic moans of Led Zeppelin's 'Whole Lotta Love' to make a powerfully erotic mix . . . that anticipated the formula of bass drum beats and love cries . . . now one of the cliches of the disco mix."

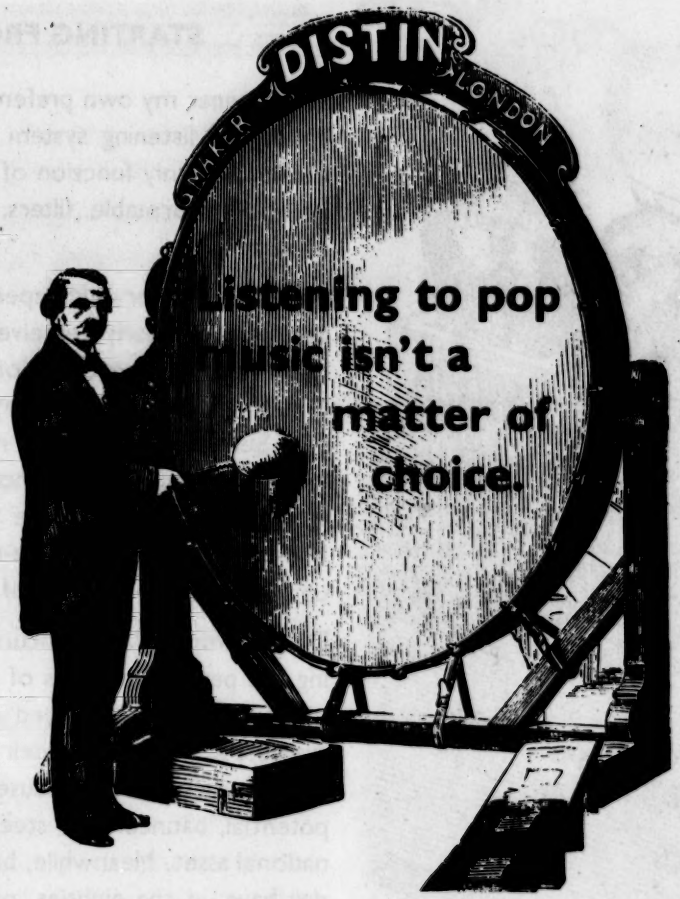
Thus the sound of music conveyed with a new authority over the airwaves is dubbed, embellished and manipulated in kind.

AURAL WILDERNESS

The reuse of existing recorded materials is not restricted to the street and the esoteric. The single guitar chord occurring infrequently on Herbie Hancock's hit arrange-

4. Quoted from Jon Hassel's essay "Magic Realism," this passage refers in an evocative way to some appropriations and transformations in Hassel's recordings. In some cases this type of use obscures the identity of the original and at other times the sources are recognizable.

ment "Rocket" was not struck by an in-studio union guitarist but was sampled directly from an old Led Zeppelin record. Similarly, Michael Jackson unwittingly turns up on Hancock's follow-up clone "Hard Rock." Now that keyboardists are getting instruments with the button for this appropriation built in, they're going to push it, easier than reconstructing the ideal sound from oscillation one. These players are used to fingertip replication, as in the case of the organ that had the titles of the songs from which the timbres were derived printed on the stops[5].



Charles Ives composed in an era in which much of music existed in the public domain. Public domain is now legally defined, although it maintains a distance from the present which varies from country to country. In order to follow Ives' model we would be restricted to using the same oldies which in his time were current. Nonetheless, music in the public domain can become very popular, perhaps in part because, as *This Business of Music*[6] puts it, "The public domain is like a vast national park without a guard to stop wanton looting, without a guide for the lost traveler, and in fact, without clearly defined roads or even borders to stop the helpless visitor from being sued for trespass by private abutting owners."

Professional developers of the musical landscape know and lobby for the loopholes in copyright. On the other hand, many artistic endeavors would benefit creatively from a state of music without fences, but where, as in scholarship, acknowledgement is insisted upon.

THE MEDIUM IS MAGNETIC

Piracy or plagiarism of a work occur, according to Milton, "if it is not bettered by the borrower." Stravinsky added the right of possession to Milton's distinction when he said, "A good composer does not imitate; he steals." An example of this better borrowing is Jim Tenney's "Collage 1" (1961) in which Elvis Presley's hit record "Blue Suede Shoes" (itself borrowed from Carl Perkins) is transformed by means of multi-speed tape recorders and razorblade.

Tenney took an everyday music and allowed us to hear it differently. At the same time, all that was inherently Elvis radically influenced our perception of Jim's piece.

Fair use and *fair dealing* are respectively the American and the Canadian terms for instances in which appropriation without permission might be considered legal. Quoting extracts of music for pedagogical, illustrative and critical purposes has been upheld as legal fair use. So has borrowing for the purpose of parody. Fair dealing assumes use which does not interfere with the economic viability of the initial work.

In addition to economic rights, an artist can claim certain moral rights to a work. Elvis' estate can claim the same rights, including the right to privacy, and the right to protection of "the special significance of sounds peculiar to a particular artist, the uniqueness of which might be harmed by inferior unauthorized recordings which might tend to confuse the public about an artist's abilities."

My observation is that Tenney's "Blue Suede" fulfills Milton's stipulation; is supported by Stravinsky's aphorism; and does not contravene Elvis' morality.

HITTING BACK THE PARADE

The property metaphor used to illustrate an artist's rights is difficult to pursue through publication and mass dissemination. The Hit Parade publicly promenades the aural floats of pop. As curious tourists, should we not be able to take our own snapshots ("tiny reproductions of the Taj Mahal") rather than be restricted to the official souvenir postcards and programs?

All popular music is (as is all folk music by definition) essentially, if not legally, existing in a public domain. Listening to pop music isn't a matter of choice. Asked-for or not, we're bombarded by it. In its most insidious state, filtered to an incessant bassline, it seeps through apartment walls and out of the heads of *Walkpeople*. Although people in general are making more noise than ever before, fewer people are making more of the total noise; specifically, in music, those with megawatt PAs, triple-platinum sales, and heavy rotation. Difficult to ignore, pointlessly redundant to imitate: how does one not become a passive recipient?

As oceanographer Bob Ballard of the Deep Emergence Laboratory described their plan to apprehend the Titanic once it had been located at the bottom of the Atlantic, "You pound the hell out of it with every imaging system you have." ■

5. I have been unable to relocate the reference to this device which had, for example, a "96 Tears" stop. According to one source it may have been only a one-off mockup in ads for the Roland Juno 60 synthesizer.

6. *This Business of Music*, Sidney Schemel and William Krasilovsky (5th ed. 1985; Watson-Guptill, New York).

• See also "Down By Law" by Robert Christgau, *Village Voice*, 3/25/86.

Digital Samplers

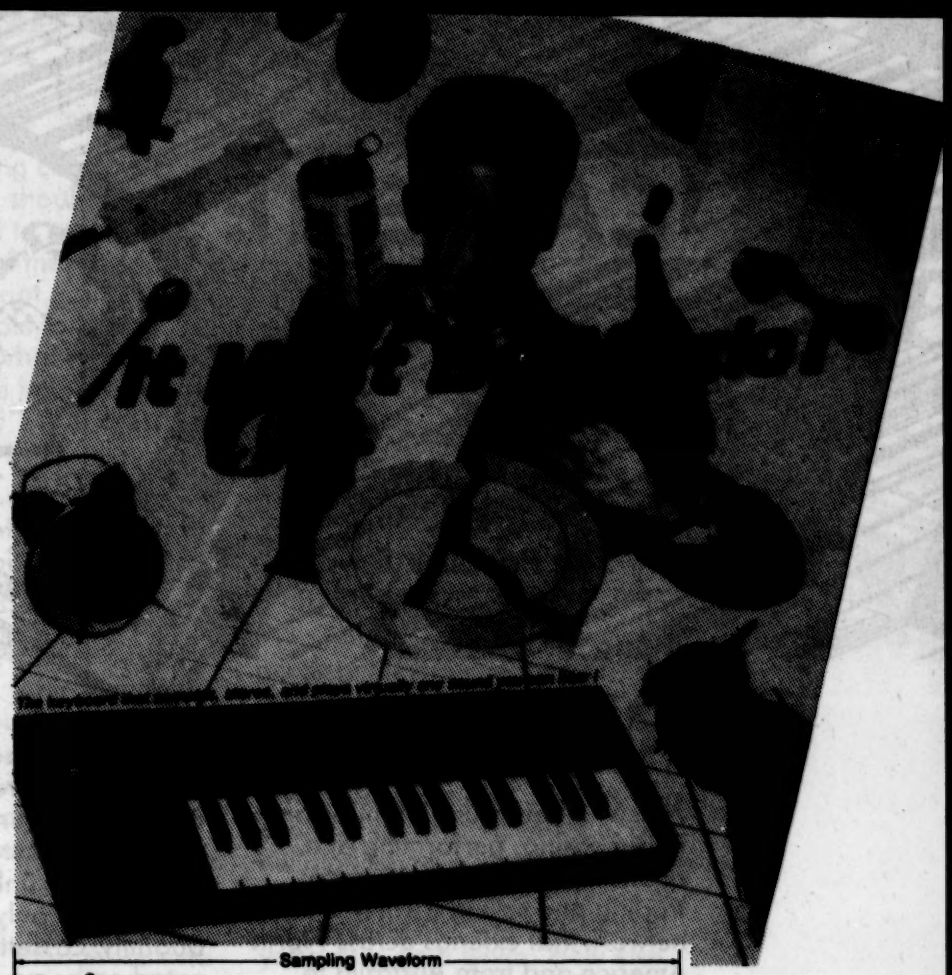
One of the most astonishing musical innovations in decades is the digital sampler. A sampler records any sound — say, a clang of pots, or a cough, or a guitar strum on an old 78 — and lets you play that sound across a keyboard in several octaves. You probably wouldn't want to, but it's possible to play Bach on the cough. You can tweak the sound in the usual ways synthesizers do, by adding harmonics, distorting frequencies, until it's hardly recognizable. Anything — streetcars, insects, the whish of wind — can become an instrument, so that, in a sense, one can now play the whole Earth.

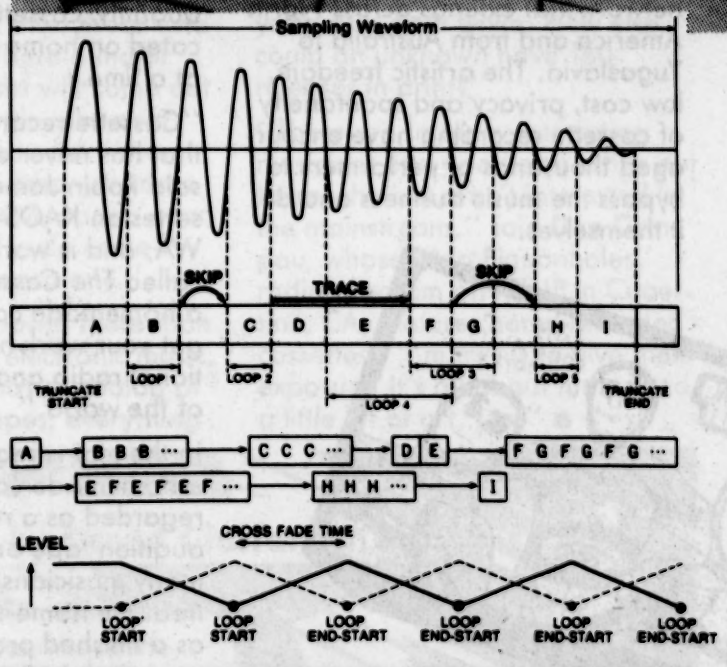
What's the best way to get into the fray? The cheapest route is the Casio SK-1 for $99. It has an adequate built-in microphone and tape input terminal. You can walk around the house recording found sounds, or tape stuff off TV commercials. It'll capture a second and a half's worth of noise at about AM-radio quality. Then you play the miniature keys up and down across two and a half octaves, and it squeaks out the "notes" through built-in speakers.

A more serious model like the Casio FZ-1 (about $1,800) will digitize and store up to 64 sounds on a built-in 3½" floppy disk, and play them back over five octaves on a full-scale keyboard. Sound segments up to 14 seconds long can be captured. Most importantly, it sends the signals out in MIDI standard, which allows the sound to be reproduced by any piece of professional electronic recording or music-processing instrument.

Affordable music samplers like these are dismantling the boundaries of sound. —Kevin Kelly

[Suggested by Richard Kadrey]





Casio Samplers are available from authorized dealers in most megalopoli. Check your Yellow Pages.

●

The FZ-1 features an 8-stage Loop function which allows the insertion of up to 8 loops in the sampled sound. These loops can be inserted at any point in the sampled sound's waveform, using loop "Start" and "End" parameters.

In addition, a Cross Fade Time parameter allows smooth transition from the end of one section into the beginning of another. Trace and Skip parameters allow tracing of one specified loop pattern or skipping to the next specified loop. . . .

Computers & Music

SOFTWARE SWALLOWS MUSIC, read all about it! Follow the action in this homespun newsletter from a musician crazy about homespun music on personal computers. Use it to keep up in a field that is accelerating faster every second. —Kevin Kelly

[Suggested by Ramon Sender Barayon]

The Computers & Music Quarterly Report

Joe West, Editor

$20/year
(four issues) from:
Computers & Music
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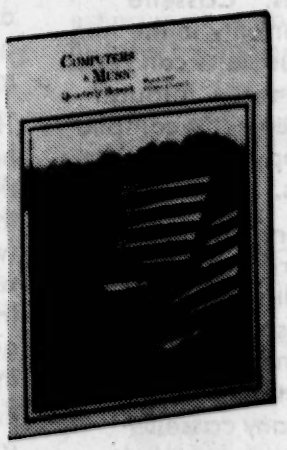
Daly City, CA 94014



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System 1 *Price: $3,000*
IBM Clone w/640k 2 disk drives
Voyetra OP-4001 interface
Sequencer Plus
Casio CZ-1 synthesizer
Yamaha FB-01 module
Roland TR505 drum machine

Comments
This system is awesome compared to what was available in our last issue. The CZ and FB give you 16 Multi-timbral voices and they both sound great. The CZ keyboard has velocity and aftertouch to send to the FB and the Roland TR505 has both straight and Latin percussion. You have about 100 bucks left over to buy cables with. . . .

System 2 *Price: $5,000*
Macintosh 512k w/Ext Drive
Performer
Austin Development interface
Oberheim Matrix 6 synthesizer
Yamaha TX-7 module
Roland JX8 module
Yamaha FB-01 module
Roland TR707 or Yamaha RX-11 drum machine
Casio TB-1 MIDI thru box

Comments
This is closer to $5500 but I couldn't help myself. This was designed for composition, but could be used quite effectively in a performance environment also. The whole system was selected for the ability to take care of just about all sonic requirements. You could score most movies with this system easily.

CASSETTE CULTURE

by Jon Pareles

Electronic music, acoustic music, industrial noise, poetry, audio plays, religious and political propaganda, found sounds, and strange unclassifiable combinations of the above: it's all hearable by mail order on independently produced cassettes.

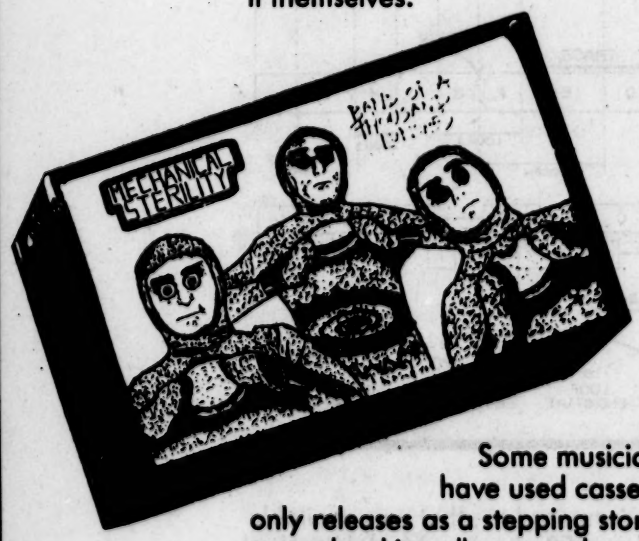
The best survey we found on this cassette underground came from John Pareles, writer for the not-so-underground New York Times. *We reprint it here. But for the story on ordering tapes, we went to insider David Ciaffardini, editor of the independent music magazine* Sound Choice.

Here come the sounds.

—Jeanne Carstensen

RECORDED music is thriving outside the record business.

A new underground of musicians is composing, performing and releasing its music on cassettes, trading and selling them in a loose network that extends across North America and from Australia to Yugoslavia. The artistic freedom, low cost, privacy and spontaneity of cassette recording have encouraged thousands of performers to bypass the music business and do it themselves.



Some musicians have used cassette-only releases as a stepping stone toward making albums; such groups as the Psyclones, who run their own Ladd-Frith cassette label, established strong reputations in the cassette underground before signing with independent record labels.

To many others, working outside established categories, cassettes are a medium unto themselves, lovingly packaged and sold to active cassette collectors who might be as far away as Belgium or Japan, two hotbeds of home recording. Cassette-only releases range from rock bands recorded live to sonic snapshots to archival recordings to what devotees call "ambient-industrial" music.

Affordable recording technology, especially the advent of inexpensive multitrack recorders, has made it possible to turn a bedroom or a kitchen into a studio for less than $1,000. And unlike LPs, which are economical only when pressed in quantity, cassettes can be duplicated on home equipment, one at a time.

"Cassette recording is a venue that has never existed before," said Robin James, who plays cassettes on KAOS-FM in Olympia, WA, and is working on a book called *The Cassette Mythos*. "With a homemade cassette, you can get your work heard on international radio and be a citizen of the world."

In the mainstream music business, a homemade cassette is generally regarded as a rough draft, an audition tape or a demo tape. But many musicians have begun to treat the home-recorded cassette as a finished product.

"The stuff that we put out as cassettes is all the same quality that I'd put on a record, absolutely," said the creative director of Endemic Music in Denver, Bob Drake of the band Thinking Plague. "Instead of saving up our money to make one record, we decided to put out a catalog of all this music on cassettes." Cassette sales may number only in the hundreds, but the musicians can reach a potential audience — through radio programs, cassette compilations and tape copying — in the tens of thousands.

For these musicians, cassettes are virtually art for art's sake — a noncommercial, small-scale enterprise closer in spirit to small-press poetry or experimental filmmaking than to the mainstream entertainment business. Many cassette makers offer their own music in trade for cassettes from others, so that no money changes hands. Others, as Calvin Johnson of K Cassettes in Olympia, WA, put it, "eke out a vague living" by selling cassettes and performing live.

"It is a huge subculture, and one that makes a lot of noise," said the executive editor of the Los Angeles-based *Option*, Scott Becker, whose publication reviews about 60 cassette-only releases in each issue. "Here at the office, we have a closet overflowing with cassettes, and we get 50 to 75 more every month, from all over."

The cassette underground even has stars of a sort, among them the California composer Minoy, the guitarist Eugene Chadbourne (who also makes occasional albums), a British pop band called the Cleaners from Venus, and the generally acknowledged father of the home-recording underground, R. Stevie Moore of Montclair, NJ.

"A few artists are really putting out consistently creative stuff,"

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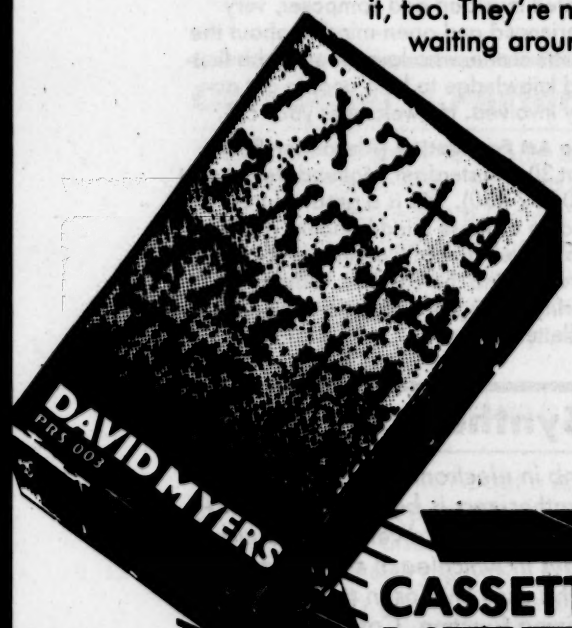
Mr. Becker said. "These are people who are pursuing a vision and doing it within a structure that's very kind to them. They never have to listen to people saying, 'No,' or 'We can't afford it,' or 'Don't call us, we'll call you.' All they have to do is make music and put it on tape."

"This is a true cottage industry," said Hal McGee, whose Indianapolis-based company, Cause & Effect, has a mail-order catalog of 65 tapes, 35 of them by Mr. McGee or his partner, Debbie Jaffe.

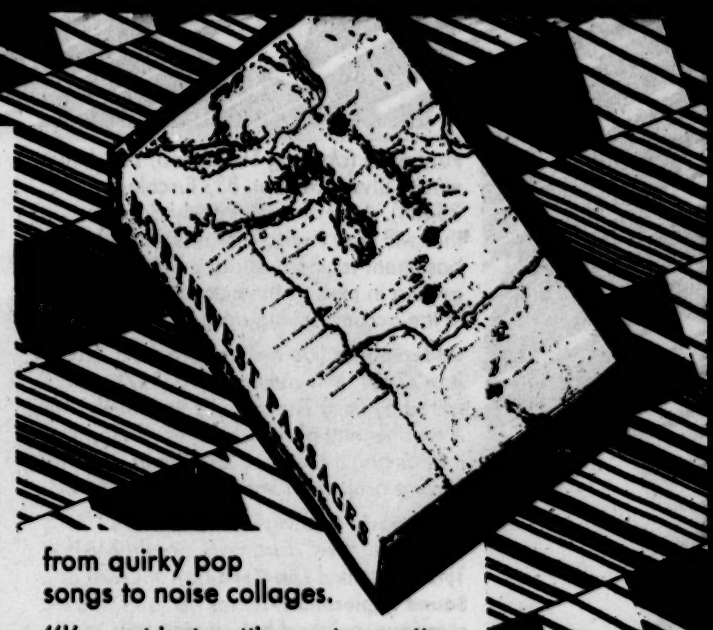
"I record on a cassette and copy on cassettes — the whole means of production stays in my hands," he said. "And I have reason to believe there are thousands and thousands of other people doing it, too. They're not waiting around for the big recording companies to tap them on the shoulder and give them the right to communicate with the rest of the world. Doing this, you're not going to get 10 million people to hear you — but you can do what you want." Mr. McGee said he had a collection of cassettes by 1,300 other performers.



The cassette form, which can hold up to 90 minutes of music without sacrificing sound quality, encourages some performers to write longer pieces than would fit on an album. And its portability has made it a medium for international collaborations by mail. Al Margolis, who runs Sound of Pig Music, reported that he collaborated on one cassette with musicians from Germany, Japan and Spain.

Dedicated cassette musicians tend to be more prolific than those who make albums. "Where a major label or record artist will come out with at most a couple albums a year," Mr. Margolis said, "there are cassette artists who will come up with six 60-minute tapes a year, and they're trying to do something different on each one."

Mr. Minoy has released more than 50 cassettes of his electronic music, while Mr. Moore has a catalog of 180 homemade tapes, everything from quirky pop songs to noise collages.



"I'm not just putting out cassettes because they're cheaper, or because American record companies are ignoring me," Mr. Moore said. "My cassettes are a diary of sound, a very personal kind of thing; this is what I do, writing songs and building soundscapes. It's almost a kind of sickness. You know, I just did a whole instrumental album yesterday, on a whim. How else could an unknown have 180 releases in print?"

"There are so many interesting musicians and poets and artists out there who just aren't interested in the mainstream," said Don Campau, whose "No Pigeonholes" radio program on KKUP in Cupertino, CA, features home-recorded cassettes. "I'm trying to give them exposure. It's all about fun — and a little bit of art, too." ■

CASSETTE ACTIVISM by David Ciaffardini

TAPPING into the cassette scene requires activism. You'll have to write letters if nothing else. Try to explain your interests or at least where you obtained their contact address and request more information about what they have to offer. Although some cassette artists will barter for their work, don't expect to get anything for free. Include a stamped, self-addressed envelope or an international reply coupon if nothing else. And be patient. Most of these people work for the love of it and don't have legions of office help to answer the mail. But when you do get your reply, it is liable to be thoughtful and personal.

Because the cassette scene is so individualized and multifaceted, it would be impossible to list every source for independent cassettes. In compiling the following contact list, I picked contacts that offer good starting places to begin exploring the many tunnels of the cassette network. All of the names below will lead to addresses of other important cassette-culture participants. It will be up to you to sift through them to track down the particular aspects of cassette culture you are most interested in. Send a letter and SASE to every address below and the next month is bound to bring some very interesting mail — and that will be just the beginning.

PUBLICATIONS

Anti-Isolation (c/o Xexoxial Editions, 1341 Williamson Street, Madison, WI 53703). Mail art and cassette culture embrace warmly in this high-spirited quarterly networking primer guided by the love-it-and-live-it dynamic duo of Liz Was and Miekel And.

Cassette Mythos Audio Digest (P. O. Box 2391, Olympia, WA 98507). Robin James guides this international cassette networking project, which will eventually produce an encyclopedic book on cassette culture called **Cassette Mythos**. In the meantime, there is the **Audio Digest**, an irregularly published postal handshake welcoming your further involvement with the book and many other aspects of the cassette lifestyle, networking and progressive, peace-loving uses for the cassette.

CLEM (c/o Alex Douglas, P. O. Box 86010, North Vancouver, BC Canada V7L 4J5). CLEM stands for Contact List of Electronic Musicians, and these days that leaves a lot of room for lots of eclectism. This is updated semiannually or so and is always thick with enthusiastic commentary and contact addresses. ►

Funhouse (c/o Lang Thompson, 2111 University Blvd. East/apt. 33, Tuscaloosa, AL 35404). A list of names and addresses that will lead you to a brotherhood of basement-taping musicians who are engaging in most of the activities described in the accompanying article.

Uddersounds (c/o Richard Franecki, P. O. Box 27421, Milwaukee, WI 53227). Inspired by Lang Thompson's **Funhouse**, this is another straightforward networking list introducing the names, addresses and current projects of various audio-artists.

Musicworks (c/o Music Gallery, 1087 Queen St. West, Toronto, Canada M6J 1H3). Subtitled **The Canadian Journal of Sound Exploration**, it lives up to its title as a serious, polished but adventurous triannual magazine available with a cassette of audio examples of the sounds discussed in print.

Option (P. O. Box 491034, Los Angeles, CA 90049). The most mainstream of the publications here, **Option** is published bimonthly and seems to be getting farther away from cassette coverage as they learn that cassette artists don't do much advertising. Nevertheless a lengthy cassette column remains, reviewing the more traditionally packaged independent cassettes.

Sound Choice (P. O. Box 1251, Ojai, CA 93023). My own quarterly publication, it offers by default the most comprehensive coverage of cassette art activities, but it is by no means all-inclusive.

NETWORKING-ORIENTED CASSETTE LABELS AND INDIVIDUALS

Sound of Pig (c/o Al Margolis, 28 Bellingham Lane, Great Neck, NY 11023). Possibly the most prolific cassette label in the world, **SOP** releases approximately one new cassette a week from musicians throughout the world exploring the extreme reaches of musicality. Nothing fancy but done in the networking spirit and made available from two to four dollars each.

Ladd-Frith (P. O. Box 967, Eureka, CA 95502). A small, energetic label, nearly a vanity press for the various projects of musicians Brian Ladd and Julie Frith. But they branch out by offering nicely packaged, powerful and edgy electronic-oriented compilations and releases from others around the world.

The Subelectrik Institute (475 21st Ave., San Francisco, CA 94121). Unusual songs and musical approaches from several groups and individuals.

Tellus (c/o the Harvest Works, 596 Broadway #609, New York, NY 10012). Each bimonthly **Tellus** cassette covers a particular audio theme — ranging from the Tango, to Radio, to Power Electronics — made up of submissions from a variety of contemporary new-music artists. Don't let the slick packaging fool you — always lots of adventure inside.

Greg Taylor (602 Russel Street, Madison, WI 53704; 608/246-9621). Greg is a talented musician and composer, very experienced and open-minded about the cassette scene, who loves sharing his first-hand knowledge to help people get actively involved. He welcomes your call.

Radio Art Foundation (Alexander Boersstraat 30, Amsterdam, Holland; telephone [0]20 792 620). This is a great source for some of those mind-bending radio plays as well as many other avant-garde approaches to the cassette. Offers very inspiring, thought- and action-oriented newsletters. ■

Cheapest Synthesizers

The standing rule of thumb in electronic music is that having many really cheap synthesizers is better than having a single expensive one. Richness and diversity in sound comes by the different ways in which each synthesizer computes a signal. Yamaha uses FM (as in the radio broadcast) for its synthesizing function. Casio uses a choppy digital process. Others use an "additive" algorithm. Take a multitude of sources, blend them together, and you'll get sound textured in the way real-life sounds are — impure, uneven, rich.

Combining sound generators, there's no reason to have a keyboard on each, so the cheapest synthesizer module doesn't. It is the Yamaha FB-01 (about $350), roughly the size of a hardback book. Some music stores that cater to electronic musicians have these keyboardless units stacked on the floor. Composers walk out with three or four of them. Each one they add is another layer of grain in their music fabric.

To use them you'll need at least one synth with a keyboard and the usual MIDI paraphernalia. The by-now-old standard at the low end is the Casio CZ-101 for around $300. It has a mini-keyboard which feels cramped, but you can link it to a hi-fi tape deck and revel in a variety of built-in sounds. If touch sensitivity is important (the harder you hit the keys the louder the sound is) you'll have to get a velocity-sensitive keyboard. Currently the Casio CZ-1 ($600) is a good choice. The next step up from that is a used Yamaha DX-7 (about $1,000), the music industry workhorse. An alternative option for a professional tool is to combine the CZ-1 with the nifty FB-01 box. You get two flavors of sound generation (FM and digital) for better variety. —Kevin Kelly and Ramon Sender Barayon

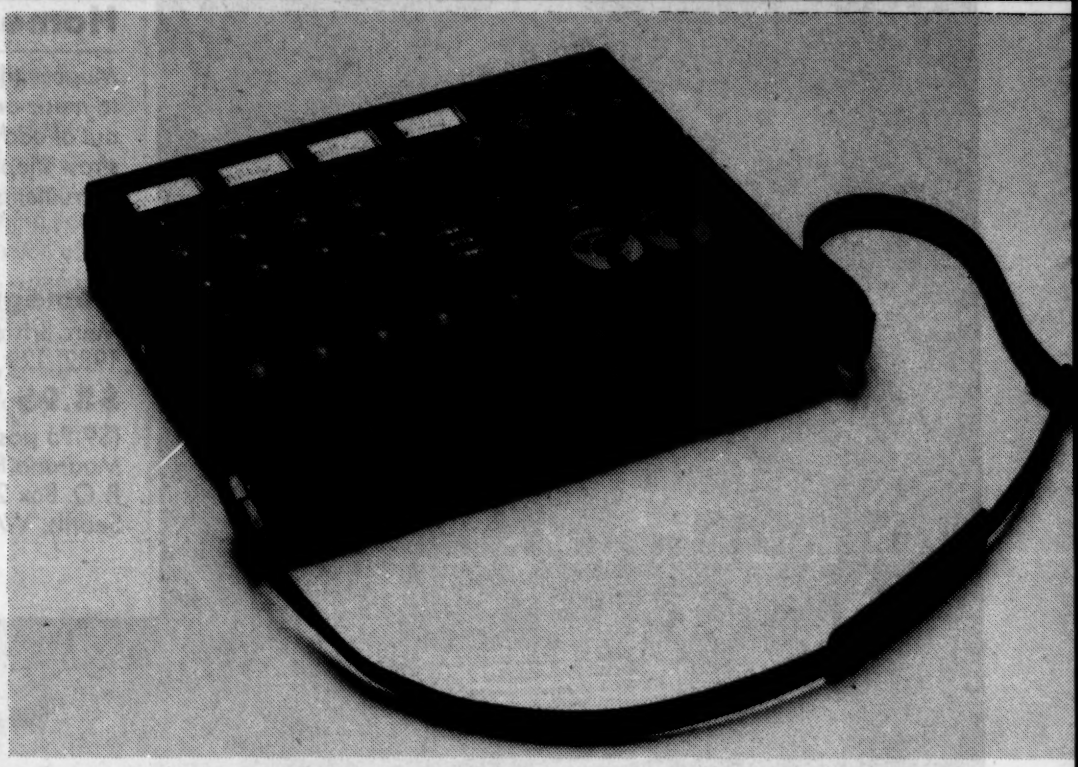
Cheap Synths: Yamaha and Casio dealers are so numerous as to be almost unavoidable. Prices are approximate.

Portable Studio

The heart of home recording is an inexpensive editing setup. There is an increasing number of mixers for sale that are based on cassettes. Fostex has a popular one called a "portastudio." I recommend another brand, the TEAC Tascam Porta One for $450 (street price; $549 list). It's easy for a beginner to use. You can record 4-tracks onto one normal cassette tape. By carefully sweeping three tracks onto one, you can get a poor man's 7-track mix in only two generations. Perfect for adding orchestration to a one-person band. All micro-multitrack equipment is more awkward to operate than the large pro machines, but, hey, you can do it all with cassettes.

—Ramon Sender Barayon
[Suggested by Ethan Gold]

Tascam Porta One: Information **free** from TEAC, 7733 Telegraph Road, Montebello, CA 90640; 213/726-0303.



Composer • Performer

Wouldn't it be lovely to noodle around on a keyboard and, when you had a little tune you liked, capture it into a musical score which could be altered or printed out? Or maybe do it the other way around. Noodle around with notes on a score, and then have it played out in sound, perhaps with a full choir of instruments?

Two software pieces, working in tandem, make this a home job.

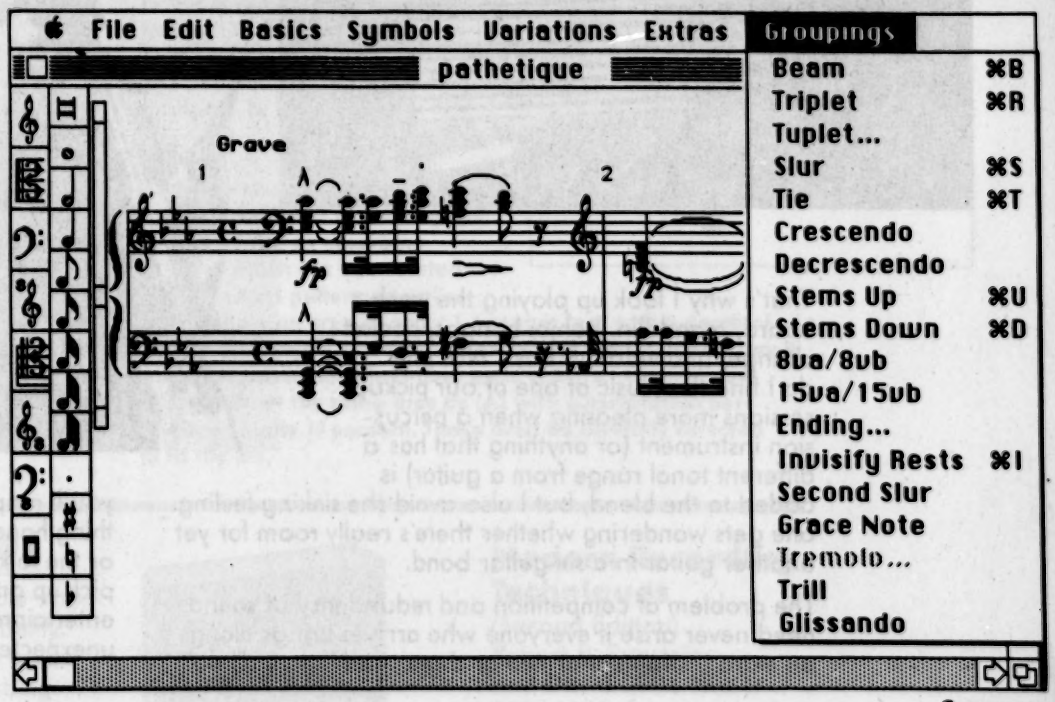
Composer lets you write out a score, modify it, store it, and print it out via your Macintosh. You can also "monitor" a piece you composed through the Mac's dinky speaker, which plays a simplified version of the melody.

Performer lets you capture the digital footprint of sounds from any MIDI-standard synthesizer and send it to Composer to be scored or stored. Working in reverse, it takes a score from Composer and directs it through the MIDI inlets of any synthesizer module, to be played, amplified, or transfigured.

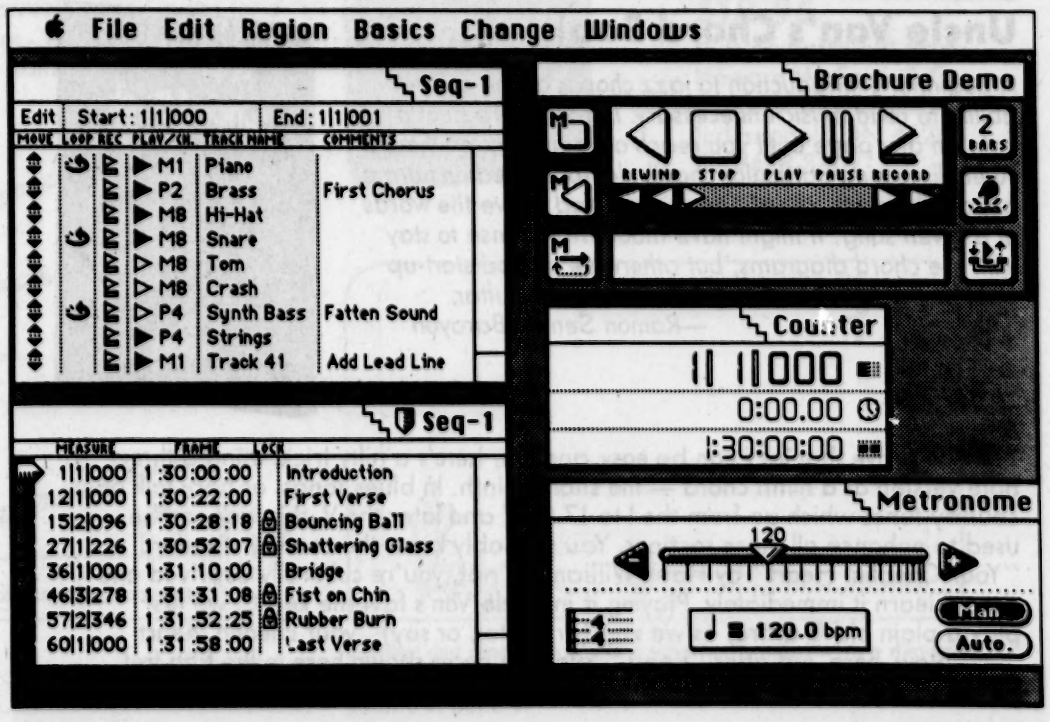
In short, if you're into serious music-making, this is simply the best music-processing software on any computer.
—Ramon Sender Barayon

Composer: Version 2.0; copy-protected. **$495.**

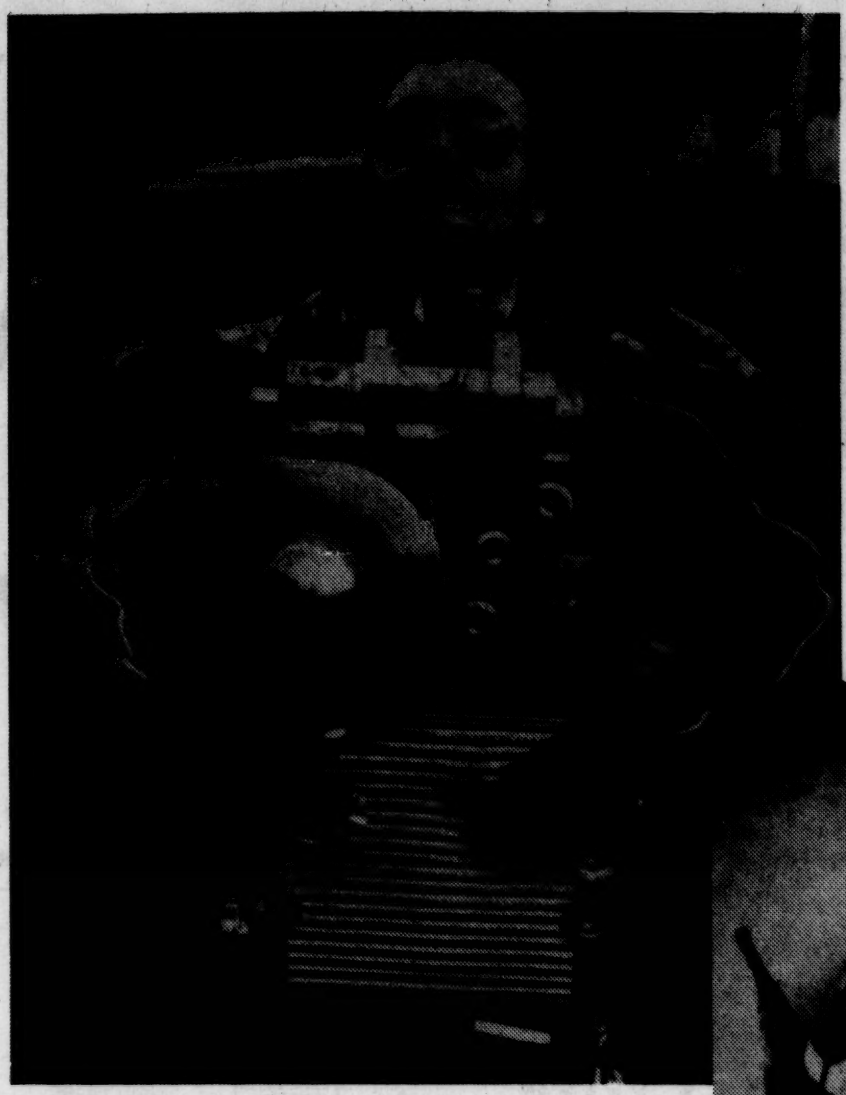
Performer: Version 2; copy-protected. **$395.** Both from Mark of the Unicorn (call 617/576-2760 to find local dealer information); also available from CODA (p. 116).



Composer.



Performer.



Homegrown Music

Music without computers. This is the backwoods approach to music on the cheap. Folksy directions for getting music out of odd things like bamboo-root oboes and wild-oat-straw shepherd's pipes. I like their holy mission of rescuing instruments out of people's attics and garage sales.
—Ramon Sender Barayon

Homegrown Music
Marc Bristol
1982; 129 pp.
$8.95
($9.95 postpaid) from:
Madrona Publishers, Inc.
P. O. Box 22667
Seattle, WA 98122

(Top left) Tod Parks of Snohomish, Washington. Notice the thimbles glued to the ends of the glove fingers.

(Left) Larry "Mr. Jug" Van Over demonstrates the proper technique for playing the jug.

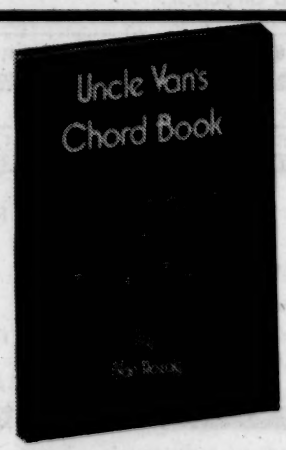
•

That's why I took up playing the washboard, mandolin, banjo, bongos, pocket change, and washtub bass. Not only do I find the music at one of our pickup sessions more pleasing when a percussion instrument (or anything that has a different tonal range from a guitar) is added to the blend, but I also avoid the sinking feeling one gets wondering whether there's really room for yet another guitar in a six-guitar band.

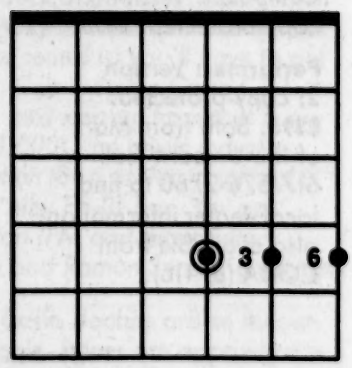
The problem of competition and redundancy of sound need never arise if everyone who arrives brings along an extra instrument or two or three. And if they all do, you'll reap another bonus too: There'll always be something handy for the musicians who drop in unexpectedly, or the folks who've never tried to make music before, to pick up and play. You'll be surprised at the amount of entertainment, satisfaction, and downright *fun* such unexpected additions can add to your hoedown.

Uncle Van's Chord Book

A beginner's introduction to jazz chords on the guitar, ability to read music unnecessary. In fact, there's not a note on any page until you reach an appendix on theory. After discussing particular chords demonstrated on normal guitar diagrams, chord names are listed above the words of a given song. It might have made more sense to stay with the chord diagrams, but otherwise a good start-up book for anyone previously terrified by the guitar.
—Ramon Sender Barayon



Uncle Van's Chord Book
Van Rozay
1987; 46 pp.
$10.95 postpaid from:
Canyon Books
Room 200R
1000 Redwood Highway
Canyon, CA 94516



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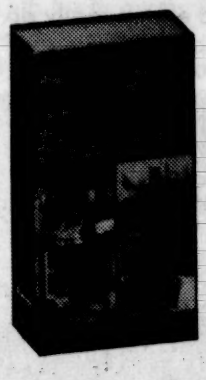
Now, to prove that jazz can be easy and fun, here's a nifty trick, using a three-note version of a ninth chord — the sliding ninth. In blues songs, or pop, folk or country tunes which go from the I to I7 to IV and later the V, this trick can be used to enhance all those sections. You probably know the country standard "Your Cheatin' Heart" by Hank Williams. If not, you're culturally deprived and should learn it immediately. Playing it in Uncle Van's favorite key, C, we first play a plain old C chord, as we sing (or mutter, or say) "your cheatin' heart . . ." Now, here, just after "heart," play the notes shown here in the fifth fret, and *slide* the position down, first to the fourth, then to the third fret. Neat, huh?

How To Build A Small Budget Recording Studio From Scratch

Frequently a home-based composer forgets to consider the environmental impact of his art until the neighbors begin pounding on the walls. If you need complete acoustical isolation, this detailed manual covers everything you need to construct a recording studio. Good discussion of preferred acoustical characteristics, although the writing style is that of a stiff, elderly English gent. Designs for a home studio, garage multitrack, control room servicing two studios, and many more. Even if you live in a rented space, this information could prove useful for isolating your studio from the neighbors' ears.

—Ramon Sender Barayon

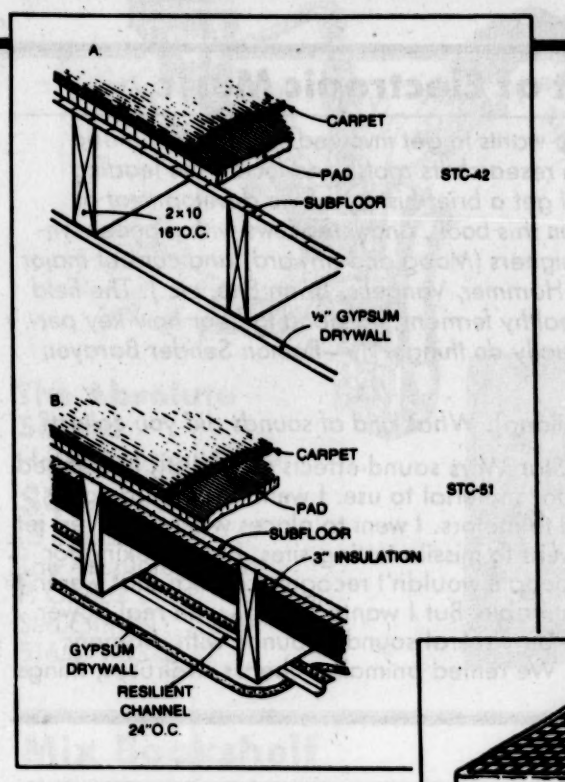


How To Build A Small Budget Recording Studio From Scratch
F. Alton Everest
1979; 335 pp.
$14.95 postpaid from:
Tab Books
P. O. Box 40
Blue Ridge Summit,
PA 17214
717/794-2191

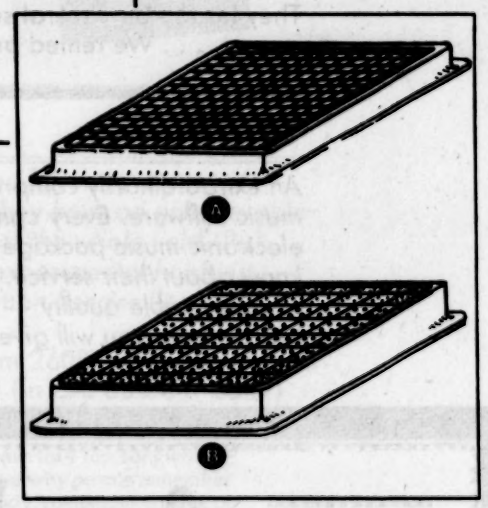
•

After seeing and hearing of numerous horror stories concerning attempts to treat studios acoustically at minimum cost (egg cartons come to mind), the importance of truly budget absorbing modules is emphasized. . . .

The molded plastic trays nurseries use for small bedding plants offer some promise. . . . These could be fitted with pads of glass fiber of 3 pounds per cubic foot density, 1½ inches thick and mounted to wall or ceiling surface with a few screws in the lip. The high perforation percentage means that this 1.7 square foot module would give the same absorption as 1½ inches of glass fiber without the plastic support.



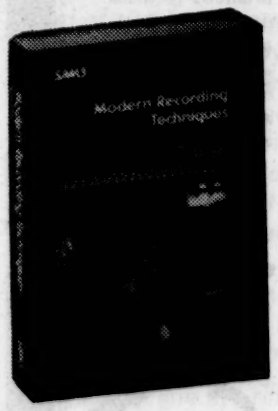
(Above) Two methods of protecting a studio from noise from the floor above with frame construction: (A) with normal gypsum board ceiling and (B) with resiliently mounted ceiling and insulation in the air space.



(Right) Plastic nursery trays may be used as holders of dense glass fiber and used as absorbing modules which can be mounted in any desired pattern on walls. Tray A offers an area of about 1.7 square feet with a depth of 1-5/8 inches, and a perforation percentage of 55 percent. Tray B will accommododate glass fiber pads of 2-1/2 inch thickness and has about the same area as (A) with a perforation percentage of only 10 percent. These must be carefully selected to fit the job.

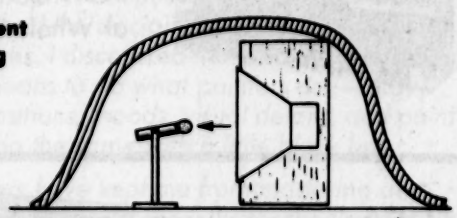
Modern Recording Techniques

Arcane technical knowledge is not easily accessible when you start out trying to record something in high fidelity. You can wade through the wisdom in this manual and come out with a stretched understanding of recording principles. The book helps you do live recordings, or set up a studio. I learned how to correctly place mikes for a live recording, and how discs are "cut" and "pressed." For serious recorders only. *—Ramon Sender Barayon*

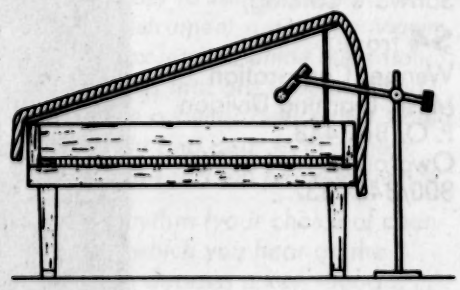


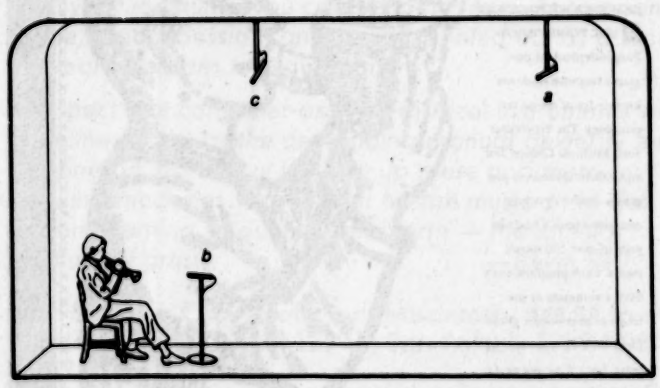
Modern Recording Techniques
(Second Edition)
Robert E. Runstein
and David Miles Huber
1986; 362 pp.
$18.95
($21.45 postpaid) from:
Howard W. Sams & Co.
4300 W. 62nd Street
Indianapolis, IN 46268
800/428-3602
or Whole Earth Access

Isolating an instrument amplifier by covering it with a sound-absorbing blanket.



Preventing leakage from getting into a piano mike.





Distant and close miking of a solo instrument with a distant microphone at point a and an accent mike located at either point b or point c.

The Art of Electronic Music

Anyone who wants to get involved in electronic music should both research its roots, and locate the leading edge. You'll get a brief history of the development of equipment in this book, and interviews with pioneer synthesizer designers (Moog and onward) and current major artists (Jan Hammer, Vangelis, Brian Eno, etc.). The field is in such healthy ferment, it's good to hear how key performers actually do things. —*Ramon Sender Barayon*

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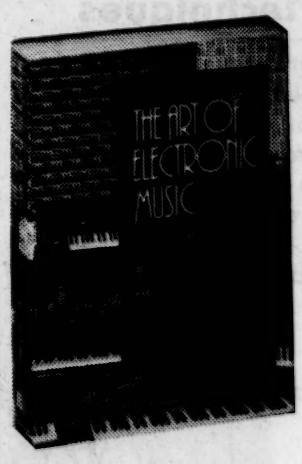
[Dominic Milano]: *What kind of sounds did you collect?*

[Ben Burtt, *Star Wars* sound-effects specialist]: I searched continually for material to use. I went through factories and listened to motors. I went to places where they test jet engines. I went to missile testing sites. I was looking for things that people wouldn't recognize, things that weren't readily identifiable. But I wanted things with real power. They had to be visceral sounds, sounds with dramatic impact. . . . We rented animals — bears, walruses, things of that sort — and recorded them to use for the alien voices. Then we had to catalogue the sounds by emotional content — this is an angry sound, this is an unhappy noise, this is pathetic — to build a library of phonemes, the basic elements of speech. . . .

I have a tape version of the movie with no sound effects or music, just the original out-of-the-camera sound. What was said on the sets is all you hear. It's hilarious, because Threepio's voice was like a *hmm-hmm-hmmm* from behind the plastic mask, Darth Vader's was completely different, all the floors sounded like wood, the storm troopers were crinkling like big bags of cellophane because they were in plastic suits, Artoo was making no sound at all, and there was an occasional stage direction like, "Okay, turn your head to the left." It's really funny. Sound effects really do contribute a lot to making a film come alive.

Edouard Coupleux and Joseph Givelet with their automatic synthesizer, c. 1929.



The Art of Electronic Music
Tom Darter
and Greg Armbruster
1983; 315 pp.
$15.95
($17.45 postpaid) from:
QUILL/William Morrow
105 Madison Ave.
New York, NY 10016
800/843-9389
or Whole Earth Access

CODA

An extraordinarily comprehensive mail-order source for music software. Every conceivable program, interface, or electronic music package I've heard of, they have. Don't know about their service. The catalog is a visual knockout — coffee-table quality — and a steal for the price. Order two because you will give one away.
—*Ramon Sender Barayon*

ELEMENTS OF MUSIC: NOTE NAMES DRILL. #3A10825 $39.95

ELEMENTS OF MUSIC: KEYBOARD NOTE DRILL. #3A10826 $39.95

ELEMENTS OF MUSIC: KEY-SIGNATURE DRILL. #3A10827 $39.95

ALL 3 ELEMENTS OF MUSIC PROGRAMS. Also includes progress tests for each drill, progress reports for students, and an instructor file for easy access to student records. #3A10828 $99.95

LISTEN! A MUSIC SKILLS PROGRAM. Three lessons focus on perceiving and identifying intervals, basic chords, and seventh chords, while a score page provides feedback. (From Electronic Courseware Systems, Inc.) *What you need to run LISTEN!:* Commodore 64 or 128 with disk drive. #3A10829 $39.95

MUSIC COMPOSER QUIZ. Students have 3 chances to answer each of 20 questions randomly selected from a built-in pool of 100. The teacher may edit or print the quiz questions. The program also keeps student records. (From Electronic Courseware Systems, Inc.) *What you need to run the Music Composer Quiz:* Commodore 64 or 128 with disk drive. *Optional:* printer. #3A10830 $39.95

MUSIC FLASH CARDS. Nine lessons on 3 disks provide drill-and-practice in notes, rhythm values, and rhythm value equivalents; major scales, minor scales, modal scales, and key signatures; and intervals and basic chords. Each lesson ends with a student evaluation. (From Electronic Courseware Systems, Inc.) *What you need to run Music Flash Cards:* Commodore 64 or 128 with disk drive. #3A10831 $99.95

MUSIC TERMINOLOGY. Five independent programs improve students' knowledge of music terminology. The True/False Test, Multiple Choice Test, and Fill-In Questions programs randomly select questions from a built-in pool of over 100 music terms. Each program ends with a summary of the terms to be reviewed. (From Electronic Courseware Systems, Inc.) *What you need to run Music Terminology:* Commodore 64 or 128 with disk drive. #3A10832 $39.95

MUSICAL STAIRS. This colorful aural-visual game gives younger students practice in identifying intervals on the bass and treble clefs. Intervals from unison to octaves are played on an on-screen keyboard and grow more difficult with each 10-item sequence. Scores are stored in a "Hall of Fame" (From Electronic Courseware Systems, Inc.) *What you need to run Musical Stairs:* Commodore 64 or 128 with disk drive. #3A10833 $39.95

CODA
(The New Music Software Catalog)
$4 from:
Wenger Corporation
Music Learning Division
P. O. Box 448
Owatonna, MN 55060
800/843-1337

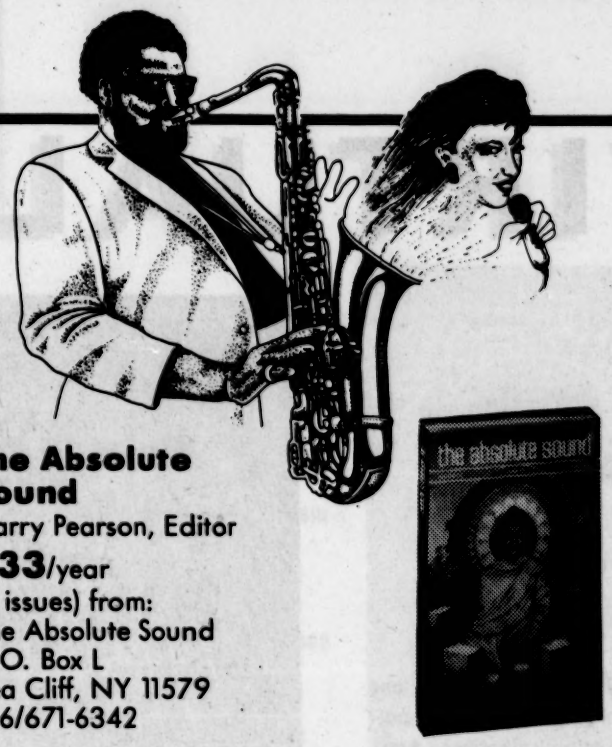
The Absolute Sound

Among the many types of fanatics in the world, the most maniacal by any measure are sound fanatics. To a member of this species, "good enough" is a dirty word. It smells of moderation. The only essential thing in the world is perfect sound reproduction.

Sound fanatics are on an eternal quest for technology that records, stores, or broadcasts human voice and music in absolute fidelity. Nothing less will satisfy. And price is not an issue. Some of the systems described in this dense, intense journal cost more than a sports car. But the sound! . . .

For those of us without unlimited budgets, this bi-monthly is both a peek at craftsmanship for its own sake, and a very critical, meticulous review of any kind of sound equipment or recordings. (There's a whole page each issue on "how to read" the ratings in the magazine.)

—Kevin Kelly



The Absolute Sound
Harry Pearson, Editor
$33/year
(6 issues) from:
The Absolute Sound
P. O. Box L
Sea Cliff, NY 11579
516/671-6342

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What electrostatic headphones offer is arguably the highest level of fidelity attainable from any transducer. Generically, they have lower distortion and less coloration than other transducers. As a group, they impose less indigenous, spurious character on the music than, say, microphones, cartridges, or speakers. At its best, headphone listening offers an intimate, private, close-up experience with music that allows the listener to hear every subtle shading and detail of the performance. This can be exhilarating for those who love music and want to get as close as possible to the essence of the recording. Headphones, by their nature, banish the idiosyncratic aberrations of the listening room from the reproduction chain, thus eliminating a major cause of coloration.

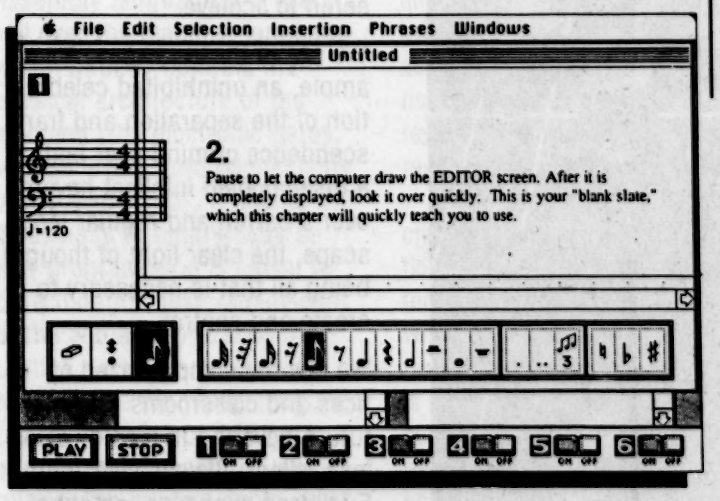
Mix Bookshelf

A wide-ranging mail order source for every aspect of electronic music that's in print. They have an unbelievable selection, and are really on top of the whole field. Pick your level, from professional to experimental hobbyist.

—Ramon Sender Barayon

Mix Bookshelf: catalog **free** from 2608 9th Street, Berkeley, CA 94710; 800/233-9604 (in CA: 800/641-3349)

5150C) MELODY WRITING One of America's top songwriting teams, Al Kasha and Joel Hirschhorn, discuss why people remember tunes, rhythmic prosody and melodic prosody, comparisons made of bridge and verse, compounding the melody, the importance of intros, hooks, sub-hooks, range, intervals, the different ethnic flavors in melodies, minor and major chords, bass figures, progressions and more. 90 minutes $10.00



◄ Studio Session allows you to print out the score of music you just played and hear the music of a score you just wrote.

Jam Session • Studio Session

I became a photographer because I was fascinated by painting yet never had the disciplined drawing skill that a good painter requires. I discovered that photography gave me the technical means to do what painters do — play around with compositions, moods, visual details, and paint with light. I could do the same with a little black box.

Undisciplined fingers have kept me from mastering any musical instrument as well. Yet recently, for the first time in my life, I played something that actually sounded like improvised music. I owe my glory to ***Jam Session****, a remarkable computer-assisted instrument run on the Macintosh. This kind of little black box lets me enjoy the emotion of creating and releasing sounds that are truly pleasing to the ear. I can easily imagine a better device that would follow my lead more accurately and pour forth angelic choirs of sound, but* ***Jam Session*** *is a fun place to start.*

Jam Session *sets up a basic rhythm (your choice of country, rock, jazz, classical, etc.) which you hear on the Macintosh speaker. When you depress a key, though, instead of getting a single note, it sends you a quick riff of notes that are perfectly syncopated to the beat, even if your touch wasn't. Even more liberating, the program's logic reaches for the nearest notes that would be in key, bringing a harmony that would ordinarily come from many years of practice. It plays a rapid sequence of the right notes at the right time, freeing music-playing from strict handwork. Someone like me, who is all big toes on most instruments, can use* ***Jam Session*** *to improvise lyrical music that is immensely satisfying for long periods. I think of it as a set of training wheels: I can steer, but I won't fall flat on my face.*

One can define the riffs a certain key will play, giving further personalization. If you are particularly impressed with your jamming, you can save the file to its companion piece, Studio Session, and have it printed out as a score for real musicians to play from.

I suspect that computer-assisted musical instruments will redefine music, as the demanding manual dexterity for playing an instrument is taken up more and more by thinking machines. What's left for the musician to do? Vision, framing, sequence, and form — the familiar domain of artists.

—Kevin Kelly

Jam Session: Copy-protected; Macintosh. **$49.95** from Broderbund, P. O. Box 12947, San Rafael, CA 94913-2947; 415/492-3500.

Studio Session: Version 1.2U. Not copy-protected. Macintosh 512K, Plus, SE. **$89.95** from Bogus Productions, 415/332-6427.

VIRTUAL REALITY

BY YAAKOV GARB

As Gregory Bateson points out, one hemisphere of our brains does not make the distinction between symbols and the reality symbols represent. Our logical mind must continually remind its renegade other half that "the map is not the territory, and the name is not the thing named." Yaakov Garb's "Virtual Reality" is a shadowy warning of how computers can encourage that very confusion. Are we, as a culture, substituting symbolic realities for the world?

This article is excerpted from his work-in-progress, "Western Dreams: Towards a Hermeneutics of Computer Technology." Yaakov is working on his Ph.D. in math and science education at U.C. Berkeley, where he is an assistant teacher in environmental ethics and philosophy. He's also a computer programmer. His article, "The Use and Misuse of the Whole Earth Image," appeared in WER #45. —Jeanne Carstensen

"ALL GREAT SIMPLE IMAGES REVEAL A PSYCHIC STATE."
—Gaston Bachelard

The computer sends its pure rays of light (information) across the barren gridded cityscape of the future. The only other entities it deals with are mere symbolic icons, abstract synthetic cubes.

WE CAN INTERPRET A new tool as we would a dream, for what it tells us about the psyche of its creator. For with all their ostensibly practical aims, tools are also displays of fantasy, tangible metaphors — poems. They are the stories we tell ourselves about who we think we are, or wish to be. And the scary thing is that they help these stories to come true.

With this perspective, I have begun to examine the images of computers in advertisements. These media representations are loquacious about the dreams our culture has inscribed in silicon; they reveal in no uncertain terms some of the West's fondest hopes and longings, which the computer is engineered to achieve.

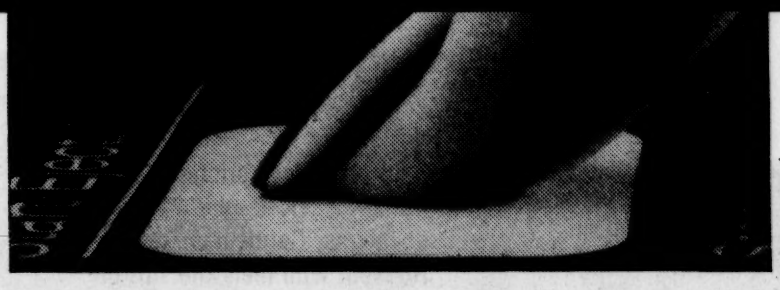
We see in these images, for example, an uninhibited celebration of the separation and transcendence of mind over body: a disembodied intellect hovers over a barren and regular landscape, the clear light of thought being all that is necessary to create and control.

We see the computerized offices and classrooms of the future hovering in a cold, colorless, silent, lifeless void; pure Euclidean expanses, empty of all but the grids of Cartesian geometry with their promise of the utter translatability of physical reality into mathematical abstraction. The only thing that moves here is the mind; the only thing vital — the flow of data, the transmission of pure light.

We see the substitution of symbolic realities for the world, the Earth becoming merely one more peripheral device connected to our keyboard.

And above all we see control: the images of supreme and effortless power-from-a-distance.

What follows is an attempt to



understand one of the primary ways in which computer technology enables, mimics, and encourages these illusions — through its creation of virtual realities.

Virtual: That which is so in essence or effect, although not actually; practically; to all intents; as good as.

Much of the real power of computers, and the source of much of the myth which they weave, is achieved through multiple maskings, the creation of "virtual realities." One on top of another, levels of symbols are built. Each level self-contained in its internally consistent logic. Each level further simplifying the material intricacies which underlie and support it.

Assembly language is a first veil over the machine language which directly controls the physical architecture of the machine (the electronic gates, voltage levels, and connections of the microchip). It masks the messiness of binary code so that programming is closer to pure thought, less reminiscent of the actual physical configuration on which it depends. Next, with a high-level language (such as BASIC or PASCAL) supported by assembly language, the original contours of the actual machine are almost invisible. The PASCAL which runs on a room-filling mainframe is identical to that which runs on your desktop Macintosh. And when higher-level languages are used to create application programs (a battlefield simulation or an expert system for medical diagnosis) physical reality recedes still further: we operate purely in "mind-space," see only what is called a "virtual machine." And just as the structure of this technology masks from us the complexity and concreteness of its inner workings, the computer's creation of self-contained symbolic worlds encourages us to mask from ourselves the actualities of its sources, consequences and uses in the world. Filtered aspects of the world are gathered, translated into nominal symbols, manipulated with freedom and impunity, and translated back into the world. All we see of this is logical space, the pliant ciphers at our command: an illusion of vast power and control.

This increasing ability to represent (and in some significant sense substitute) portions of our world with the virtual reality of compact, easily manipulable visual symbols — through texts, maps, tables, charts, and diagrams — is a large part of what modernity is all about. Places and things far away in space and time can be accumulated, presented synoptically to the eye, compared, reworked, amended, archived, re-presented, and distributed — symbolically and at our discretion. Computers in conjunction with telecommunication technology amplify this trend to whole new realms. The translation from and to the real world is done in "real time," the scope of what can be translated and funneled into our screens appears limitless, the capabilities for graphic display and symbolic manipulation are interactive and quite fantastic.

All of this is easier and seemingly less dependent on physical mediation than ever before. For in general, the best machines are the ones we can forget about. So clean and effortless, requiring so little exertion, they fade into the background. All that remains is the seamless virtual reality they substitute for the world.

The measure of a machine is how much it controls by how little — how huge the leverage with which mind shifts matter

Descartes: "I am a being whose whole essence or nature is to think, and whose being requires no place and depends on no material thing."

In this celebration of Cartesian dualism, pure Mind (a detached cerebrum lacking even hair — the last vestige of our animality) hovers above a barren landscape. The clear light of perfect Thought crackles down through the computer to become printed text. "A word processor should be an extension of your mind . . . and let you put your thoughts down quickly, almost effortlessly. It should have automatic everything . . . "

On the slick, barren surface of a monolithic Cartesian city, a gentle caress of the executive's keyboard becomes a glowing vector of light — all that is needed for "work" to be done, somewhere, by someone.

— and how ethereal the links between pure mentation and material consequence. Today, with computer technology, that leverage is huge and the illusion of ethereality is almost achieved. The easy turn of a key, flick of a switch, or gentle push of a button are enough to move huge masses, to shake, grind, and explode. And the ads here tell us we are approaching that ultimate and apocalyptic leverage usually reserved for gods: "whole universes are at our fingertips."

Through computers, more and more of our life enters into this abstract information-space, the logical realm where "the only thing that moves is pure data." It's easy to forget that someone, somewhere is scurrying to support our virtual reality. That our machines are fed a tremendous amount of Life so that they may whisk symbols around with the tapping of a keyboard. The labor of Taiwanese women in microchip factories, the toxins flushed into our rivers, the dams, mines, and factories all help power our pristine alpha-numerics. (And who plants the soybeans, Gentleman Farmer Russell, who feels the sun on their backs and the dust in their throats, and where does the irrigation water come from?)

"Nebraska soybeans are Richard Russell's business. But he rarely gets there. Richard manages his farms from a Victorian flat in San Francisco. And he does it with little more than a telephone and a SELECT word processor."

It is in these ways that the creation of virtual realities — which is at the very core of what computers do — gives us the appearance of having achieved some of the basic goals of western modernity. An achievement boldly heralded in these images. ■

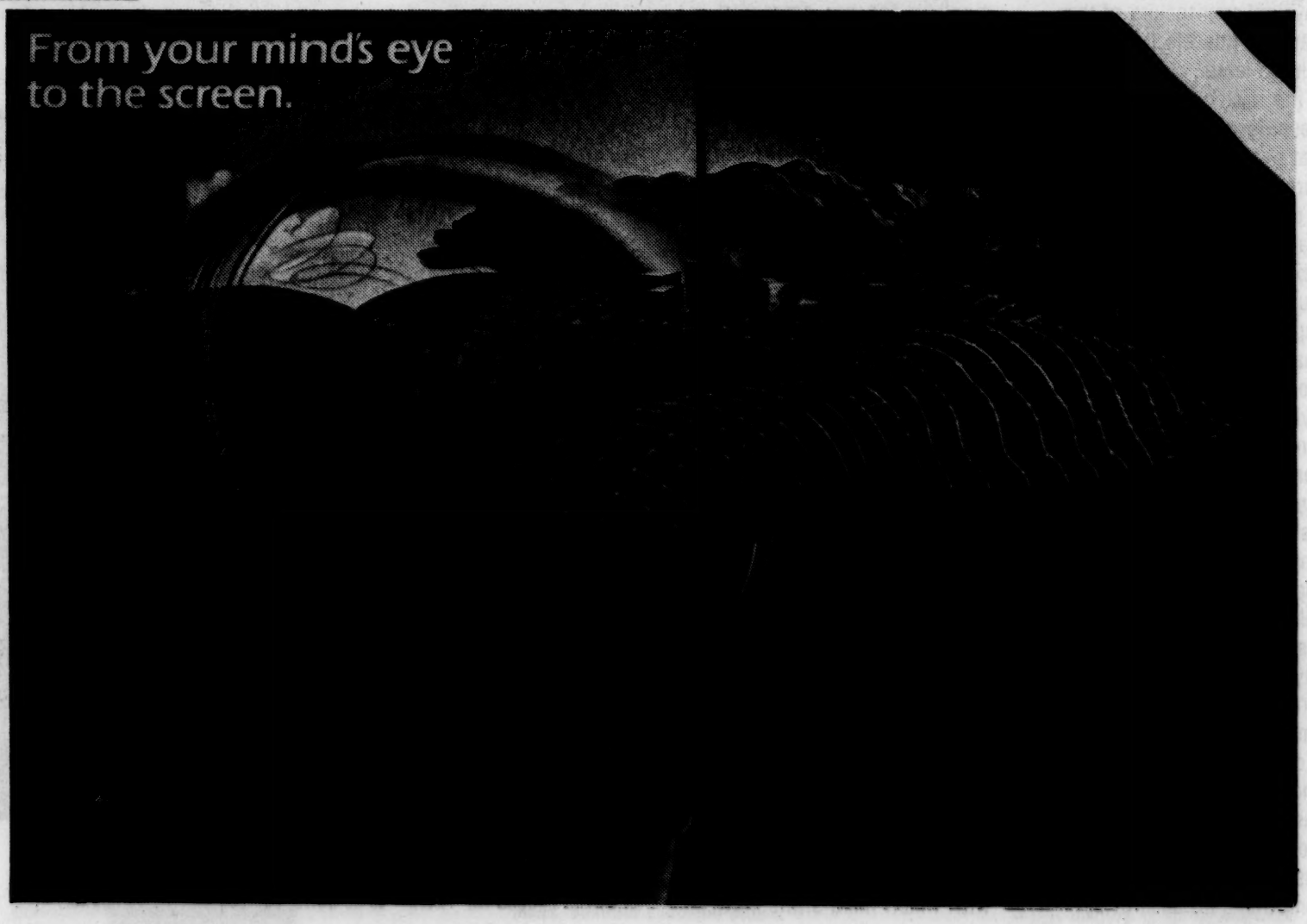
I want to defuse accusations of Manichean naivete by noting that this was composed on a Macintosh Plus using Microsoft Word.

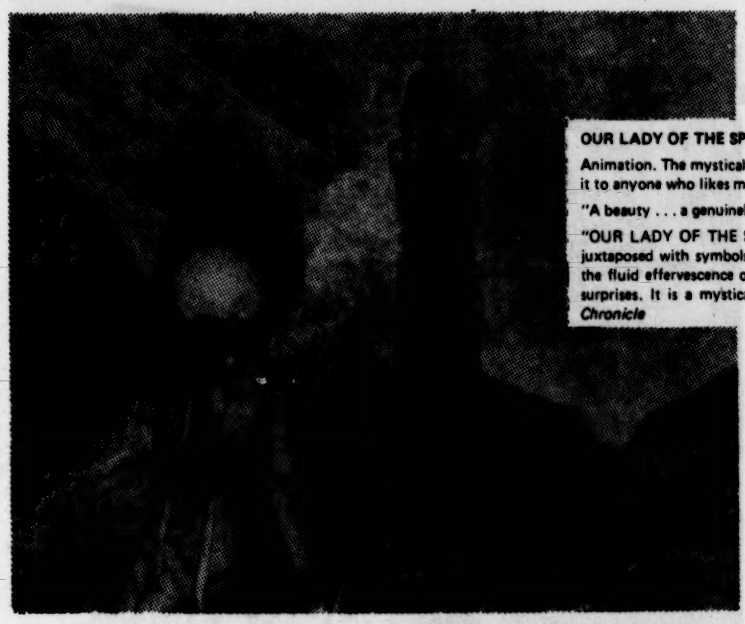
The following works have influenced my thoughts on this topic and are worth looking at:

Bruno Latour, 1986. "Visualization and Cognition: Thinking with Eyes and Hands," in **Knowledge and Society: Studies in the Sociology of Culture Past and Present**, Vol. 6, JAI Press.

Donna Harraway, 1985. "A Manifesto for Cyborgs," **Socialist Review** #80.

Zoe Sofia, "Exterminating Fetuses: Abortion, Disarmament, and the Sexo-Semiotics of Extraterrestrialism," **Diacritics** 14 (Summer 1984).





OUR LADY OF THE SPHERE (1989) 16mm 10 min. color/sound $25 rental

Animation. The mystical Lady with the orbital head moves through the carnival of life in a Surreal adventure. A classic. Show it to anyone who likes movies.

"A beauty . . . a genuinely mystical exercise."—Howard Thompson, *New York Times*

"OUR LADY OF THE SPHERE—perhaps Jordan's most exquisitely perfect creation—is a color collage of roccoco imagery juxtaposed with symbols of the space age. The images metamorphosize, transmute, interpenetrate and otherwise change with the fluid effervescence of bubbles rising out of water, punctuated by sudden flashes of light, alarm buzzers and abrupt visual surprises. It is a mystical, jewel-like creation, like a Joseph Cornell box come to life."—Thomas Albright, *San Francisco Chronicle*

Our Lady of the Sphere, by Larry Jordan. —Canyon Cinema

Canyon Cinema

I can think of no better antidote for another season of ***Jaws IV*** *and* ***Rambo XVII*** *than the independent movie fare offered by Canyon Cinema. Their selection of over 2,000 movies is as diverse and unorthodox as most Hollywood blockbusters are formulaic and commercial.*

Any filmmaker can list films with Canyon Cinema; they write their own film descriptions, set the rental price, and receive 65 percent of the rental fees (Canyon only gets 35 percent). Not only is their catalog reeling with filmmakers you've never heard of, but the more well-known (such as Les Blank and James Broughton) seem to list all the films they've ever made. It's a virtual textbook of the history of independent film, written by the filmmakers themselves.

Canyon distributes nationally. Rental rates run from $10 for a ten-minute film to $175 for Les Blank's color feature, ***Burden of Dreams****. Most are between $30 and $70. The catalog is worth the price. —Jeanne Carstensen*

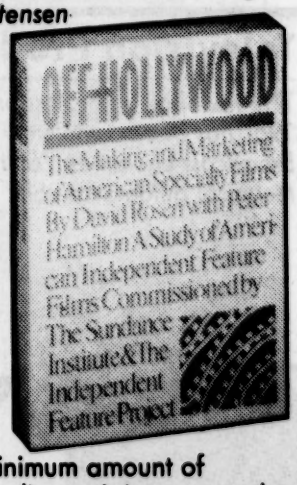
Canyon Cinema: Catalog **$8** (donation) from Canyon Cinema, 2325 3rd Street/Ste. 338, San Francisco, CA 94107.

Off-Hollywood

Off-Hollywood *tells the stories behind the making of eleven American independent features, with an emphasis on distribution and marketing. Compiled by the Sundance Institute and the Independent Feature Project, it's designed to increase filmmakers' savvy in promoting their films. The documentation of the financing, production, distribution, marketing, and promotion of the films is thorough and specific. Filmmakers tell what worked, what didn't, and why.*

The logistics of making a feature film are daunting. ***Off-Hollywood*** *wants independent filmmakers not just to succeed, but to excel. The quality of American filmmaking is at stake. —Jeanne Carstensen*

[Suggested by Gail Silva]



Off-Hollywood
David Rosen
and Peter Hamilton
1987; 298 pp.
$30
postpaid from:
The Independent
Feature Project
21 W. 86th Street
New York, NY 10024

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Andre succeeded despite the minimum amount of predetermination of its future audience. It is an example of a concept which drove its creators and its producer to complete a work because of the power of the idea, rather than of any supposed fit between the idea and the audience. Yet, in a general sense, its expected audience was the art-film moviegoer, particularly one who would be attracted to a work directed by Louis Malle.

The success of *Andre* invites a consideration of the relationship between the great influence of the major critics and the functioning of word-of-mouth. Most of the principals agree that without an accolade from Ebert and Siskel, *My Dinner With Andre* would have failed to attract enough of an audience at its New York opening run to allow word-of-mouth to develop.

Target Video

Founded by award-winning video artist and director Joe Rees, Target Video is a great source for video recordings of punk bands and underground artists. One of Target's most recent assaults on what it calls "gibbering disco complacency" is a stunning and violently beautiful video documentary of five machine performances by Survival Research Laboratories called ***Virtues of Negative Fascination****. Other Target recordings include performances by Diamanda Galas, Iggy Pop, Throbbing Gristle, the Sex Pistols, Black Flagg, Joanna Went, and the Dead Kennedys, some taped live in Target's own performance space. Many of the performances in Target's catalog are intercut by Rees with existing documentary and industrial footage to create images that are as funny and brutal as they are politically charged. In all, Target has some five hundred hours of video tapes to choose from.*

—Richard Kadrey

DIAMANDA GALAS: "THE LITANIES OF SATAN"
30 Min.-Color—Supersound.
Available in VHS and BETA Format
A West Coast premiere, based on the poem by Baudelaire. Diamanda Galas is the diva of electro-acoustic music, praised by critics around the world for a performance style inspired by extreme emotional states as her entire being becomes a physicalization of voice. This is Diamanda's first video, captured before a sell-out crowd at San Francisco's I-Beam in July 1985. Her unforgettable incarnation of forbidden psychological realms immerses the audience in an explosive jungle of aural shapes and frequencies. Described by the NEW YORK TIMES as "undeniably virtuosic," John Gill of London's TIME OUT concurs: "Whore, saint, demon, lover, madwoman or angel, there is no other voice in rock, jazz or the avant-garde with her violence, consuming passion and pure elemental force."

Target Video: Catalog **free** from Target Video, 678 S. Van Ness, San Francisco, CA 94110.

Working With Video

"The illusion is total," the authors say. "We confuse the realism of the image with reality." And so begins a book-length lesson on the century-old language of moving pictures.

All the important aspects of video production are covered — planning, equipment, actors, budget, shooting and lighting techniques, editing, promotion and distribution — always through principles designed to help you understand the medium, not rigid rules. This guide to visual literacy will help you make better videos, and also understand the visual language of our culture.

A superb beginner's manual. —*Jeanne Carstensen*

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It can be argued that, because there are so many choices involved in the video process, objectivity in practice becomes a fairly meaningless term. You decide, for instance, who shall be filmed and who shall not; what shall be asked and what left unsaid. You decide on the lens and the camera angles. Even the lighting can affect how a person appears to the audience, and it is you, the producer of the message, who decides on that, too. You decide where the material is to be cut. The sum total of these decisions is that your intellect is molding and manipulating the material. As a result, the finished tape enshrines your point of view.

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A sense of flow

A good way to get a fairly clear idea of what the final mainstream product should be like can be gained by running an episode of a well-made television program, such as M.A.S.H., through a VCR at a fast scan speed.

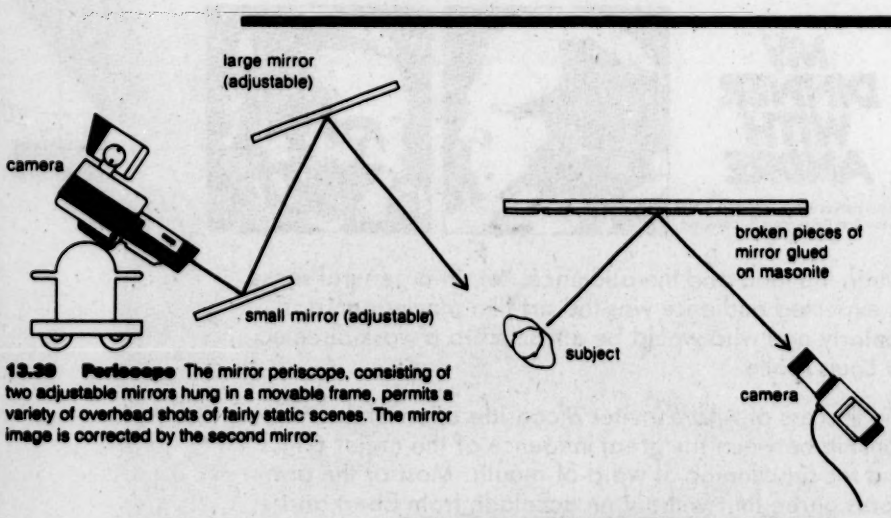
Notice how the shots move from long to close and back again in a varied way, but, at the same time, always maintaining an even pace. Also take note of the way that the action of the characters and the movement of the camera aid the sense of flow. You will also be able to see that the actions carried over a cut from one shot to another are without irritating jumps or gaps. Finally, you will observe that the action is punctuated by deliberate visual pauses.

A community-video group records a demonstration in London. Access to video becomes an extension of basic civil rights.

Working With Video
Brian Winston and Julia Keydel
1986; 256 pp.
$19.95
($21.95 postpaid) from:
Amphoto
P. O. Box 2031
Lakewood, NJ 08701
or Whole Earth Access

Television Production Handbook

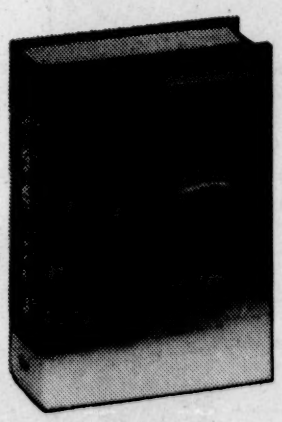
THE textbook on professional television production since 1961 has been completely revised to reflect advances in broadcast equipment. Still the best comprehensive technical guide available. With 900 illustrations.
—*Fabrice Florin*



13.39 Periscope The mirror periscope, consisting of two adjustable mirrors hung in a movable frame, permits a variety of overhead shots of fairly static scenes. The mirror image is corrected by the second mirror.

13.40 Cubist Effect with Mirror A cubistlike effect can be obtained by reflecting a scene or an object off a mirror mosaic. Simply break a mirror into several large pieces and glue them onto a sheet of plywood or masonite. When the camera shoots into this mirror mosaic at an angle (so that the camera cannot be seen in the reflection), the reflected scene takes on a startling, cubist effect.

***Use of reflector when shooting against the sun:* When shooting against the sun, go to an extreme close-up (ECU) and reflect sunlight back to talent with a simple reflector.**



Television Production Handbook
Herbert Zettl
1961, 1984; 614 pp.
$44.75
($46.75 postpaid) from:
Wadsworth, Inc.
Attn.: Order Dept.
7625 Empire Drive
Florence, KY 41042
800/354-9706
or Whole Earth Access

Deep Dish TV

These folks are the first to coordinate distribution of public-access television via satellite, and their excellent ***Deep Dish Directory*** *is the best resource guide available for grassroots television producers, programmers, and activists. The listings of access centers, cable systems, and producers can be xeroxed directly onto mailing labels and are in zip-code order; if you've ever worked for a small nonprofit organization you know what a practical gift that is.*

Satellites are the public-access frontier of the '80s that cable was in the early '70s. Deep Dish TV will get you started.
—*Jeanne Carstensen*

Sony Camcorder

Continuing the trend to close the gap between professional and hobbyist tools, we now have technology for home-made TV. High-quality, low-cost videos can be taped with a camcorder, a combination of CAMera and video cassette reCORDER bundled into a lightweight unit small enough to wield with one hand. It uses new 8mm cassettes (which, by the way, can also record 24 hours of digital music). The model we have been using is the Sony Pro 8 CCD-V110, not the cheapest one on the shelf, but one with all the features (autofocus, mike options, built-in rechargeable battery) that you'd need to make a respectable documentary or art video.

I found the quality of resolution startling. Like Kodachrome film, it seems to enhance the vibrancy of colors. There were very few lighting situations (fluorescent mall light, dim overhead bulb, gray overcast day) where the camcorder didn't perform excellently without auxiliary floodlights. Stewart, who is using one to document his conferences on learning, says he finds the quality better than broadcast TV. I know of one filmmaker who sneaks short segments made with the Sony Pro 8 into nationally syndicated TV programs. Viewers don't notice the difference.

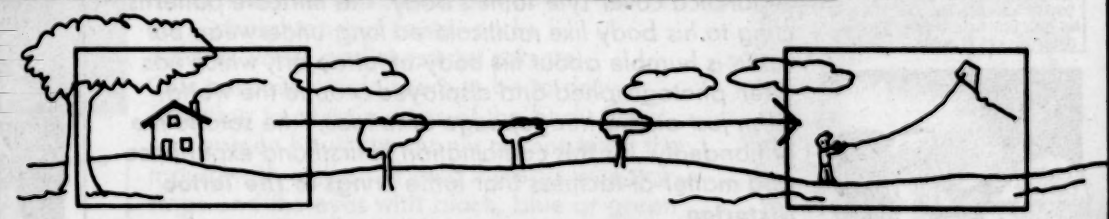
You don't need a VCR to play back the videos you make. There's a wire that connects the camcorder to your TV so the camcorder itself becomes a VCR. Unfortunately it's no good for editing. Worse still, there's nothing currently made that will let you edit a camcorder video gracefully and cheaply. Simple on-site editing can be done with the camcorder's fade and dissolve features. But until a reasonable editing machine comes into the consumer market, there will be no commercial desktop 8mm films.

—Kevin Kelly

Sony Pro 8 Camcorder (CCD-V110): Full-featured professional model. List price **$1995**; available for **$1495** from Whole Earth Access.

Sony Auto Handycam (CCD-V3): Low-end version; more compact, with fewer features. List price **$1500**; **$899** from Whole Earth Access.

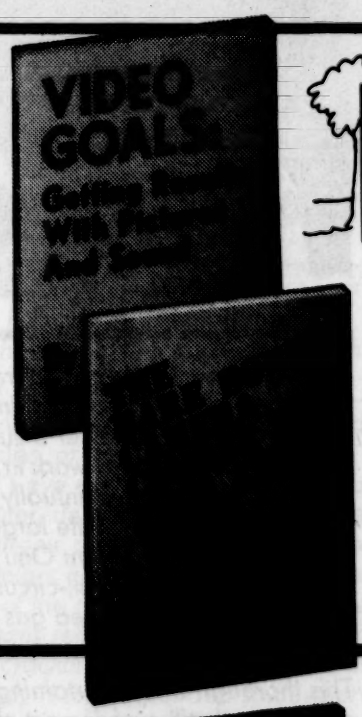
(Sony dealers are everywhere, and prices vary considerably. Check the Yellow Pages.)



The Bare Bones Camera Course
(For Film and Video)
Tom Schroeppel
1982; 89 pp.

Video Goals
(Getting Results with Pictures and Sound)
Tom Schroeppel
1987; 116 pp.

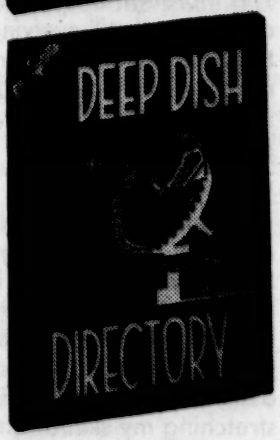
$6.95 each
($7.70 postpaid) from:
Tom Schroeppel
4705 Bayview Avenue
Tampa, FL 33611
or Whole Earth Access



The Bare Bones Camera Course • Video Goals

Oh simplicity. Tom Schroeppel's two clearly written and clearly illustrated books tell you everything you need to know to get started. No fat. Just like a good video.

—Jeanne Carstensen



Deep Dish Directory
Paper Tiger Television and the Boston Film & Video Foundation
1986; 96 pp.

$5 postpaid from:
DDTV
339 Lafayette Street
New York, NY 10012
212/420-9045

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The "public" space of access is particularly important in a nation, that unlike most nations, provides very little state or government support for television production or distribution. The little support the Corporation for Public Broadcasting gives the independent video maker is quickly being eroded. PBS is loathe to program tapes that reflect points of view that are inimical to the Reagan Administration and the corporate sponsors who underwrite PBS programming. MEANWHILE AT THE GRASSROOTS LEVEL people continue to make provocative videotapes about issues that the networks dare not touch. Public Access is an important outlet for this work.

Some access coordinators have expressed the concern that a satellite network in some way undermines the purpose of public access, which is to provide community television programming. But as access pioneer George Stoney points out, "Access is aimed at functioning on a community level, but in this culture, our sense of community is not limited to geographical areas. The idea of community also extends into broader areas of interest."

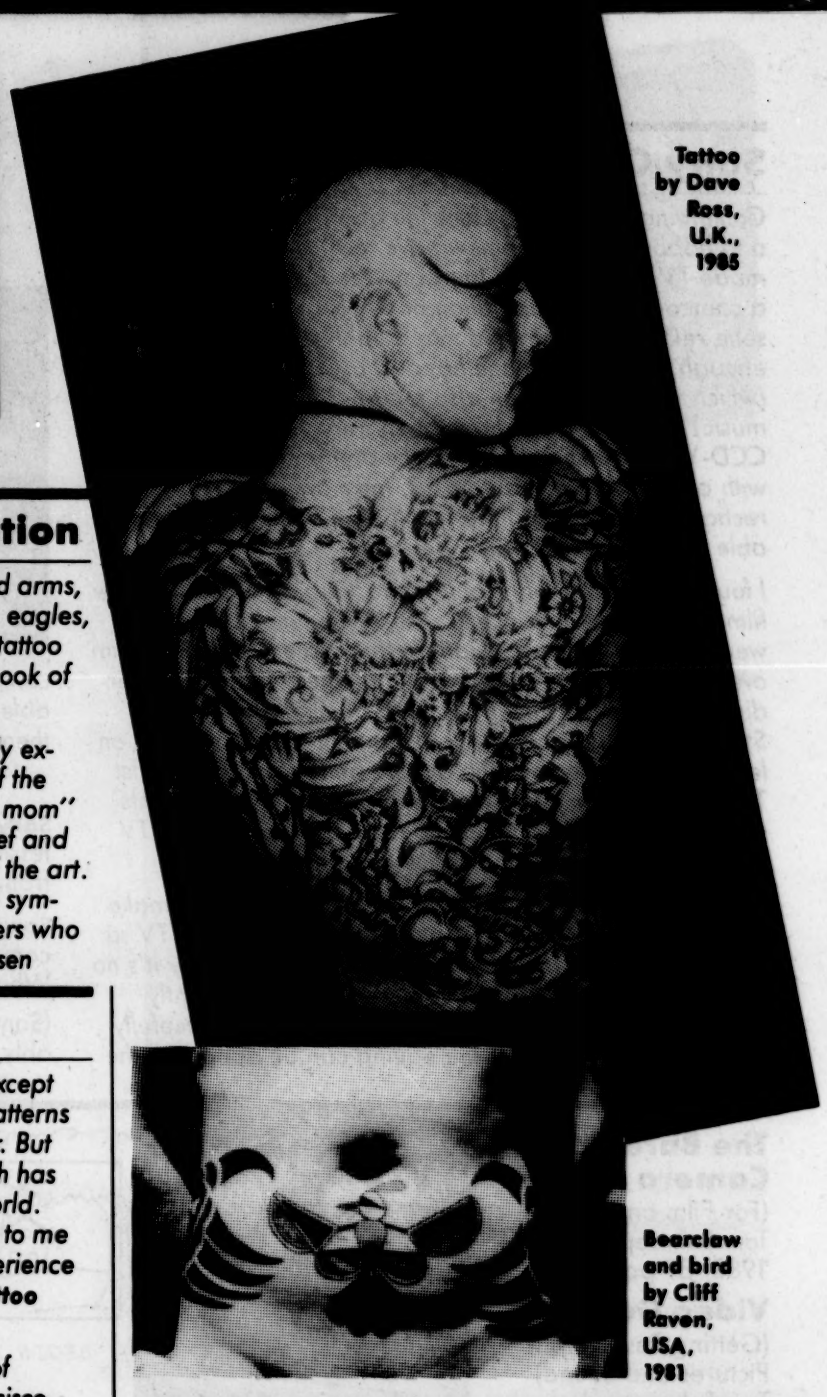
◄ So you wanna tattoo? Here's some advice from San Francisco tattoo artist and cartoonist Martin Robson.

Tattoo: Pigments of Imagination
Chris Wroblewski
1987; 128 pp.
$15.95
($17.45 postpaid) from:
Harper & Row
2350 Virginia Ave.
Hagerstown, MD 21740
or Whole Earth Access

Tattoo: Pigments of Imagination

Tattoos winding up backs, twisting around legs and arms, or curling up in some small curve of skin: dragons, eagles, cats, exotically dressed humans, and lots of other tattoo motifs writhe off the pages in Chris Wroblenski's book of dramatic color photographs.

American and English tattoo art is featured, mainly examples of the more outrageous, abstract design of the '70s and '80s. Not too many anchors and "I love mom" tattoos, in other words. The introductory text is brief and perfunctory; look elsewhere for detailed history of the art. This is a fun visual introduction to the multicultural symbols of modern tattoo art and the various characters who choose to wear them. —Jeanne Carstensen



Tattoo by Dave Ross, U.K., 1985

The Tattoo Historian

Tattoos by over sixty artists from every continent except Antarctica cover Lyle Tuttle's body. The intricate patterns cling to his body like multicolored long underwear. But Tuttle is humble about his body of tattoo art, which has been photographed and displayed around the world. "I'm just an old hodgepodge of tattoos," he said to me offhandedly. It's this combination of firsthand experience and matter-of-factness that Tuttle brings to ***The Tattoo Historian****.*

Each issue reads like a walk through one section of Tuttle's Tattoo Art Museum in downtown San Francisco. Behind glass are the Samoan tattoo tools — boar-bone combs filed to sharp points — used on Tuttle in Samoa. These artistic implements are pictured in the ***Historian*** *along with a detailed account of a Samoan receiving the pe'a — a traditional whole-body tattoo that takes five days to execute. We also learn the story of Omi, whose bold, curving stripes made him look like an art-nouveau zebra. Unemployed after a successful English Army stint in WWI, he opted for work in sideshows. Omi tattooed his entire body and eventually had a veterinarian pierce his nose to accommodate large bones. Included with the narrative are letters from Omi to his tattooist containing amazing details of small-circus life. On tour in France, Omi and his wife suffered gas poisoning from lion urine, for example.*

This thorough and entertaining documentation of the ancient and still-evolving art of tattoo makes ***The Tattoo Historian*** *invaluable for tattoo aficionados and great fun for the merely curious. I've rarely seen friendly love-of-subject and competence combined so well in a small publication.* —Jeanne Carstensen

Bearclaw and bird by Cliff Raven, USA, 1981

The Tattoo Historian
Lyle Tuttle and
Judy Tuttle, Editors
$5/issue
(no subscriptions) from:
Tattoo Art Museum
30 7th Street
San Francisco, CA 94103
415/864-9798

Omi's tattoos took more than 150 painful hours.

•

The tapping sound of the *lapalapa* (mallet) pushing the *Au* in my back is steady and even. He is using the *Au Sogi* to make the wide lines. The smallest one is the *Au Fa'atala* which is used to tattoo points and dots. When he fills in the large areas of my body, the *Au Tapulu*, the widest one, will be used. I feel the hands of the two assistants *(Ausolo)* holding me while the third one is stretching my skin and the fourth assistant wipes the blood away with a damp cloth.

The tapping suddenly stops. So far so good. At least my lower back is finished. The assistants roll me onto my side and the Tufuga's mallet strikes the *Au* into my ribs. Wow, it's really hurting and stinging like bee stings. I feel like punching him out.

A South-eastern Nuba youth brilliantly painted with a whole body design to accentuate facial features and the form of the body. The painting stresses values associated with the young male body — physical strength, prowess, and beauty.

The Decorated Body

Anthropologist Robert Brain examines the universal human need to transform the body. One of his principal aims is to diminish the traditional gap between how "primitive" and "civilized" body art is understood; our need to express group belonging or rebellion through hair style, clothing, and cosmetics is as urgent as that of the Senegalese, who stretch their children's skulls in infancy to ensure their beauty as adults.

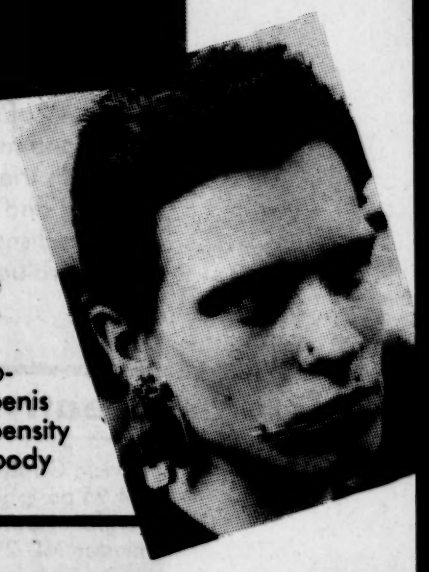
This book not only wanders through the social, ritual, sexual, and symbolic roots of body decoration in cultures around the world, it cajoles you into experiencing the power and mystery of the primary human language — that of the body.

Well illustrated with color and black-&-white photographs.

—Jeanne Carstensen

[Suggested by Martin Robson]

The Decorated Body
Robert Brain
1979; 192 pp.
$18.95
($22.35 postpaid) from:
Spalding and Rogers
Route 85/New Scotland Rd.
Voorheesville, NY 12186



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In the West we still pierce our ears, straighten our noses, and deform waists and chests by corsets. Our purpose would seem to be to draw attention to certain parts of the body. Western women have commonly accentuated the mouth with a slash of red, the ears with earrings and the eyes with black, blue or green make-up. Other peoples wear ear-plugs, labrets, lip-plugs, nose rings, penis sheaths or penis rings. I only want here to insist that the propensity to deform or alter the natural shape of the body is a universal one.

Obsolete Body Suspensions

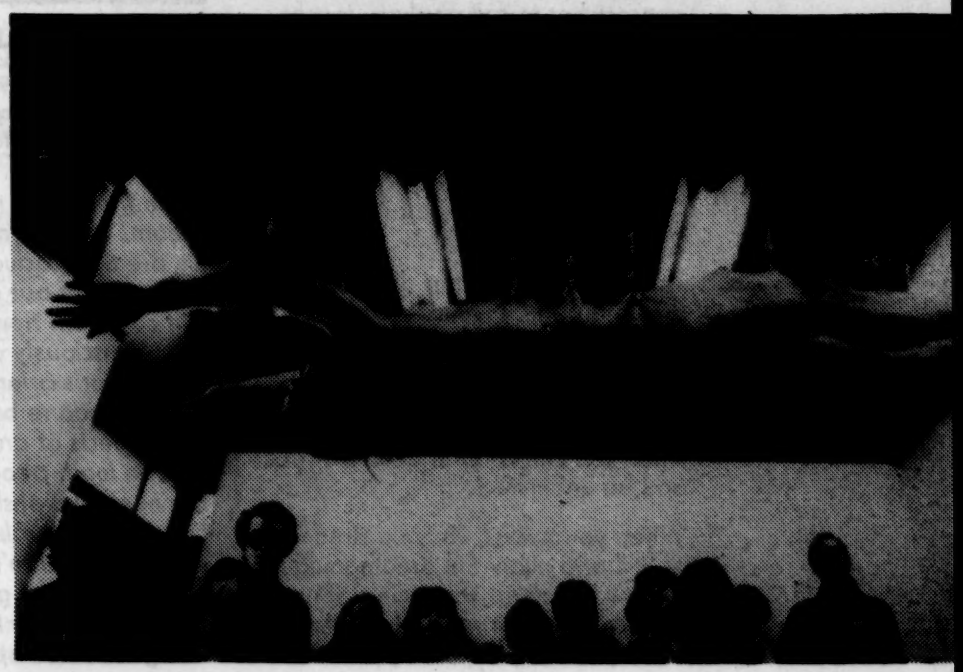
I've never actually seen Stelarc perform a body suspension. I'm not sure I'd want to. The stretched landscape of his skin as he hangs from hooks through his flesh is difficult to look at even in a book.

Yet images of Stelarc hanging — above water, surrounded by rocks, from granite slabs, or from wooden poles — have floated in my mind's eye ever since seeing his book. As I stare into my computer, delving into the mindspace of the networks and electronic drawers where I store and manipulate my ideas, Stelarc haunts me. Disembodiment has for me become one of the resounding themes of the information age; his images reharness mind to body with the fierceness of a whip cracking in slow motion. And then slice them apart. The body is left suspended somewhere in mind, an obsolete carcass, empty, meaningless.

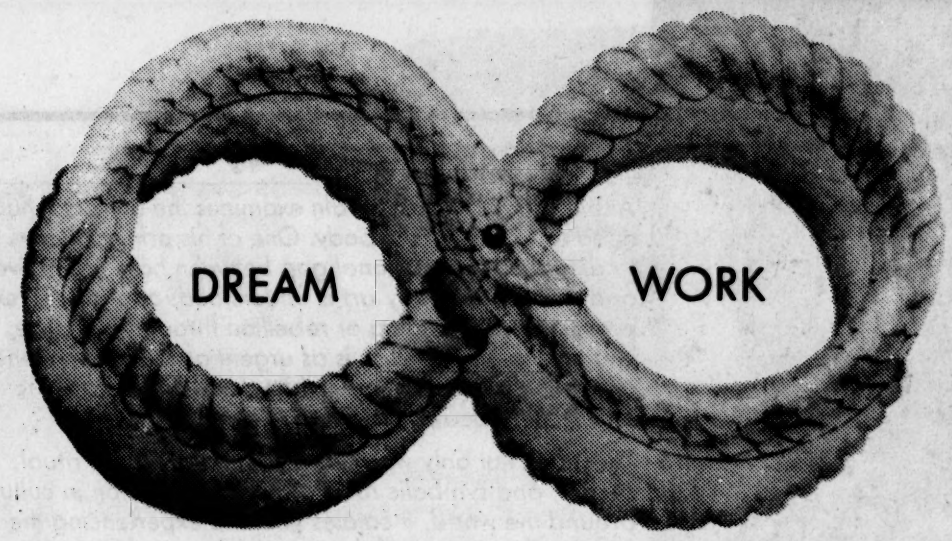
This book documents Stelarc's performances from his first suspension in 1976 through 1984. The large-format black-and-white photography makes you feel closer to the real events than you may care to get. Stelarc claims the subject of his work is not the hooks. It's worth looking at and beyond them to his bizarre, disturbing vision of physical submission to technology. And frightening.

—Jeanne Carstensen

Obsolete Body Suspensions
Stelarc
1984; 160 pp.
$16.95
($18.95 postpaid) from:
Contemporary Arts Press
P. O. Box 3123
Rincon Annex
San Francisco, CA 94119



Tamura Gallery, Tokyo — 3 April, 1977
The body was suspended horizontally at eye-level by the insertion of 18 hooks into the front of the body aligned with the concrete slot in the ceiling. After a static suspension of 15 minutes the body was swung parallel to the slot. The suspension was terminated when the swinging stopped. Total event time — 1¼ hours. Actual suspension time — 18 minutes. This event completes a 180° rotation of the body in space.



—Dreams, Illusion and Other Realities

BY HOWARD RHEINGOLD

DREAMWORK consists of remembering your dreams and seeking to understand them. There's nothing esoteric or psychologically dangerous about it. It's simply a matter of taking a look at what's right in front of your mind's eye, and using what you see to improve your life. We all know how to turn on televisions, ride elevators and open pop-top cans, but nobody teaches us how to *dream*. This situation is changing rapidly, however, because the most important "secret" of dreamwork is becoming more and more well-known: anyone who has tried to remember their dreams and understand their meaning has discovered that the ability to obtain valuable knowledge is not a gift or talent but a *skill*, like tying your shoelaces, reading a book, or driving a car.

Your basic tools for dreamwork are a pad of paper and a pen with a small flashlight taped to it, or a tape recorder, to record dream impressions, images, plots, and keywords in the middle of the night; a larger sketchbook or notebook to expand, amplify, and interpret those midnight jottings; and some knowledge of what to do with your dreams once you've learned to recall and record them. Fortunately, the secrets of the ages are now out in paperback.

Here are the books that helped me learn:

Dreams and Spiritual Growth

Louis M. Savary, Patricia H. Berne and Strephon Kaplan Williams, 1984; 252 pp. **$9.95** ($11.70 postpaid) from Paulist Press, 997 MacArthur Blvd., Mahwah, NJ 07430; 201/825-7300.

The authors take a Christian approach to dreamwork, but the book is a resource for anyone who is interested in the spiritual aspects of dreamwork. One of the nice ecumenical aspects of dreamwork is the fact that you can find it endorsed by the scriptures of the Jewish, Christian, Moslem, Hindu, Buddhist, Pagan, and Animist religions! The authors include 37 dreamwork techniques for spiritual growth.

•

Establishing *relationship* to God is a keynote of the Western spiritual tradition. In doing dreamwork we are acknowledging the Source of our healing and wholeness, and we are also building a relationship to that Source. In dreamwork, as in meditation and contemplation, we are strengthening our relationship to God.

•

Who is willing and able to look God straight in the eye, and for how long? And yet to be seen by God is to begin really to see ourselves. We must be seen in order to see. We are invited to look into the dark night and remember what we have seen. The dream is the potential, the beginning. In our devotion, we can make the eyes of God more real for ourselves and the world.

And still all is mystery!

Creative Dreaming

Patricia Garfield, 1976; 256 pp. **$2.95** ($4.95 postpaid) from Ballantine Books/Random House, 400 Hahn Road, Westminster, MD 21157; 800/638-6460.

My first and still one of my favorite introductions to the hows and whys of dreamwork. It gives a compelling, lucid history of dreamwork throughout the centuries and around the world; introduces several different approaches to self-analysis, touches on the highest aspects of dreamwork — lucid dreaming and other methods of altering dreams as they happen — and offers practical advice on keeping dream diaries and developing dream control.

•

The best time to begin developing skill in dream recall is during an unpressured time in the morning when you awaken naturally (it will be from a REM period). If you have trouble recalling your dreams, plan a time when you can spontaneously awaken and be unhurried.

When you awaken from a dream, lie still and allow the dream images to flow back into your mind. If no images come, let yourself run through the important people in your life; visualizing them may trigger association to your recent dream.

When dream recall is complete in one body position, move gently into other sleeping positions to see whether you have additional dream recall in these positions. Always move gently into any recording position.

Record your dreams whenever they come to you, immediately, later in the day, or several days later.

Living Your Dreams

Gayle Delany, 1979; 242 pp. **$8.95** ($9.45 postpaid) from Harper & Row, 2350 Virginia Ave., Hagerstown, MD 21740; 800/638-3030.

Learn the "mind movie" approach: dreams are internal scenarios, and we are the producers, directors, and audiences of our own nightly shows. We can learn how to interpret and even consciously direct the action. The author's orientation toward the more mundane but personally important aspects of dreamwork — what we can learn about our personal and business relationships, for example — can prove the value of dreamwork to people who aren't interested in creativity or spiritual growth but are very interested in why they aren't getting along with their spouse or boss.

Symbols of Transformation in Dreams

Jean Dalby Clift and Wallace B. Clift, 1986; 159 pp. **$9.95** ($10.95 postpaid) from Crossroad Publishing Co., 18 E. 41st St., New York, NY 10017; 212/532-3650.

The best short, nontechnical account of Jungian ideas about dream symbols as harbingers of psychological and spiritual transformation. Jung saw dreams as snapshots of the psyches, and he and his followers have combined knowledge from the world's collection of mystical symbology (such as alchemical texts) with the experiences of thousands of analysands, and have shown how those people who don't have gurus or who aren't initiates of one spiritual tradition or

Dreams, Illusion and Other Realities

Wendy Doniger O'Flaherty, 1984; 382 pp. **$13.95** ($15.20 postpaid) from University of Chicago Press, 11030 S. Langley Ave., Chicago, IL 60628; 312/702-7740.

A thick book, quite readable, about the central role of dreams in the mythology, epistemology, and theology of the Hindu and Buddhist religions. Since both the Hindu and Buddhist doctrines contend that the waking conscious state is an illusion, and that the goal of life is to awaken from the illusion, the idea of learning to control your dreams has particular importance in these spiritual disciplines.

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Do all cultures make the same radical distinction between "appearance" and "reality" which ours has inherited from Plato? Are their hierarchies the same? In other words, do they necessarily accept the demand that contradictions must be ironed out and that all perceptions that clash with beliefs must force us either to change our views of the "objective world" or declare the perception to have been a subjective experience — an illusion? Even in our rationalist culture we don't often live up to this logical precept. We try to evade it, especially when our emotions are involved. —Sir Ernst Gombrich

Dreams, Visions of the Night

David Coxhead and Susan Hiller, 1976; 96 pp. **$9.95** ($10.95 postpaid) from Crossroad Publishing Co., 18 E. 41st Street, New York, NY 10017; 212/532-3650.

Besides containing marvelous information about the ancient and esoteric history of oneirology, this book has marvelous illustrations, gathered from the art of every culture, illustrating key points about dreams.

another can use their dreams as a guide to inner growth.

•

When the symbols themselves are allowed to live, their meaning can continue, and Jung says they have strong power to do so:

> Luckily for us, symbols mean very much more than can be known at first glance. Their meaning resides in the fact that they compensate an unadapted attitude of consciousness, an attitude that does not fulfill its purpose, and that they would enable it to do this if they were understood. But it becomes impossible to interpret their meaning if they were reduced to something else.

Lucid Dreaming

Stephen LaBerge, 1986; 304 pp. **$3.95** ($4.95 postpaid) from Ballantine Books/ Random House, 400 Hahn Road, Westminster, MD 21157; 800/638-6460.

An account of the most exciting realm of dreamwork — the ability to awaken in your dreams and control their outcomes as you participate in them! Author Stephen LaBerge is a scientist, long associated with Stanford's Sleep Laboratory, and an accomplished "oneironaut" (his word for those of us who explore the dream realm).

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Non-lucid dreamers perceive themselves as being contained within the experiential world of their dreams. Whether they play starring roles or are only pawns in the dream game, they are still contained in a dream that they take for external reality. As long as they perceive themselves contained in this world, they are sentenced to a virtual prison with walls no less impenetrable for the fact that they are made of delusion.

In contrast, lucid dreamers realize that they themselves contain, and thus transcend, the entire dream world and all of its contents, because they know that their imaginations have created the dream. So the transition to lucidity turns dreamers' worlds upside down. Rather than seeing themselves as a mere part of the whole, they see themselves as the *container* rather than the *contents*. Thus they freely pass through dream prison walls that only seemed impenetrable, and venture forth into the larger world of the mind.

►

The dream mediates between the worlds of matter and spirit, time and eternity. In Jacob's dream the ladder with angels ascending and descending it symbolizes the ease of transition between these levels of reality in the mind of the dreamer. Time is abolished, and analogous incidents of past and future are perceived simultaneously as the dream opens the way from one world to another, establishing a relationship between mundane and spiritual realities. (Jacob's Dream, from the Lambeth Bible, England, 12th c.)

►

The entire world may be understood as the dream of an awakened dreamer. In dreams of this order there is, literally, no distinction between levels of reality.

The creative principle of the world grows out of the navel of the dreaming god in the mythical instant of the creation of the universe. This concept is present in the shamanic tradition, perhaps as old as human history, in which the individual adept assumes the role of conscious creator. (Krishna acting out the role of Vishnu in his sleep, gouache, India, 18th c.)

—*Dreams, Visions of the Night*

INTERACTIVE LITERATURE

BY DAVID SHAW

The popular misconception that scientists have no appreciation of the humanities is completely ass-backward. In fact, scientists are far more often involved in music, art, writing, history, etc., than English majors are involved in science. This artistic vigor is particularly evident at MIT, the Parthenon of science education. While Stewart Brand was lecturing there last year, he came across a recent innovation: interactive literature. His accounts of this new participatory drama prompted me to contact the creators. I called Dave Shaw, a graduate of MIT and now a research biochemist, who is president of the Society of Interactive Literature. We met in the lounge of the Lafayette Hotel in Boston. I taped our conversation, which I abridged severely, and Dave confirmed for accuracy.

—Kevin Kelly

MY FRIENDS AND I will play almost any kind of game. We often home-brew new rules for old games. We'll take an off-the-shelf board game and add intensity and unpredictability. Stores sell a game that's a world superpower/nuclear weapons game, where your ability to buy things is based on the stock market. We thought the stock market function was dumb, so we wrote our own. Now the game plays just great. Some games you play once and realize that a certain kind of situation will always produce a win. We abandon those.

We'll play Monopoly, but only with our rules. One of the rules in regular Monopoly is, if you land on a property and you don't want to buy it, it just goes unbought. When we play it, if you don't want to buy it, it goes up for auction immediately. The effect is that it becomes a very fast, vicious game. A lot of money goes flying around, people go under a lot faster. There's even more negotiating. (You'll find even further new high-octane rules for Monopoly in a new book called *Beyond Boardwalk**.)

The games we love have a certain amount of diplomatic negotiation going on. A player tries to influence the outcome of the game by interacting with other players. That's why chess doesn't interest us much. Chess is one of those games where the better player will always beat the worse player, no matter how hard one tries to talk him out of it.

By games, we really mean conflict games, negotiation games, and computer games. The element that ties them all together is the ability to personally influence the outcome. In most games there's only one correct way to do anything. You may have choices, or decisions, to make, but they will lead up a decision tree to the same ends, game after game. We became interested in role-playing games like Dungeons and Dragons because you can decide exactly what you want to happen. But we wanted a better role-playing system, where characters could interact face to face in some sort of real space, in real time, where they could actually put a lot of depth into the portrayal of the characters. There are groups all over the country now that stage murder-mystery weekends. It's almost interactive literature but not quite. You go and you watch a bunch of people act something out for you, which is not much different from watching a play. Or, you get sort of written into the game, but either way, what you do is very channeled. We wanted a game where you decide reality.

* *Beyond Boardwalk & Park Place* by Richard Hutton and Noel Gunther, 1986 (Bantam, New York).

I found the beginning of what we were looking for while I was working at a biology lab. One week during a critical lab experiment my co-worker, Walt Freitag, disappeared for an entire weekend. I asked where he was, and someone said he's turning a hotel into another planet. When he came back, by way of explanation he droped a compendium on my desk. In a hundred pages or so it outlined a scenario, rules and characters for a whole other world — a process now called Interactive Literature. I jumped in.

A good example of a successful interactive literature game is called Shadows of Sundown. The scenario is a post-nuclear-holocaust gathering in which all the characters meet at the World Trade Center, or what is left of it, to decide what they are going to do about putting the country back together again. Different factions of players plan, scheme, and plot for very different goals. The object of the game is to see where it ends up. The largest single game we played had two hundred people in it. The games tend to run in hotels small enough where we can take over the whole hotel.

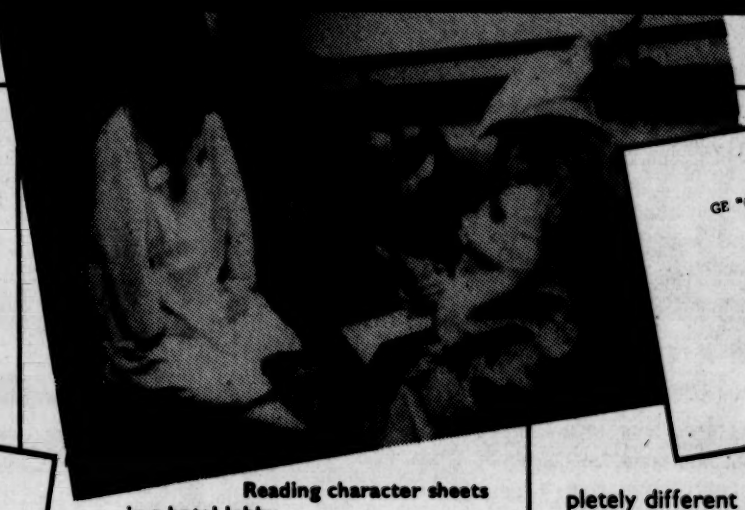
The first interactive fiction game was called Recon, played in 1983. The basic scenario was that everyone playing the game was at a convention (the players were all actually at a science fiction convention), and everyone was an emissary from different places in the galaxy. The Earth was about to be accepted into a federation of planets and each person was trying to negotiate one way or the other, until they reached a galactic consensus.

By encouraging characters to wear costumes, it becomes immensely involving. Past games have had thieves who wore black with leather gloves, and a king with red cape and jewelled crown. For a game called Watergate, everybody was running around in three-piece suits, except the character Hunter Thompson, who had the Hawaiian shirt and the bag of drugs. In Sundown, we've had mutant characters who went so far as to create prosthetic makeup. One guy had bits of wires and chips hanging out of his jaw; another one painted half of his face green, and had stuff rotting off his hands. Costumes help enforce a sense of reality. You tend to forget that you're in the lobby of the Best Western Inn in Danvers, Massachusetts.

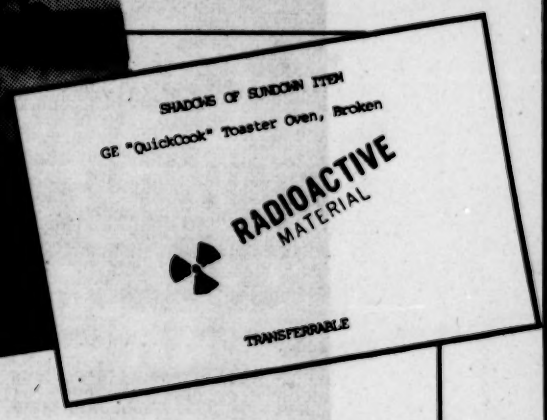
Games at RECON 3, a fantasy scenario in Boston.

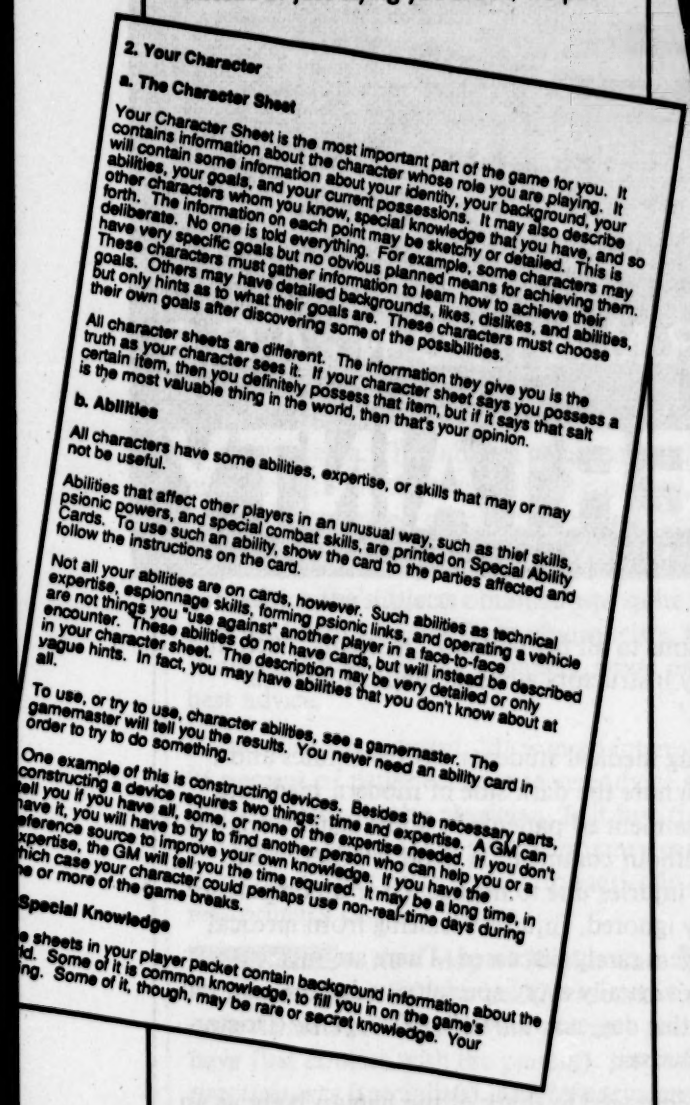
What we try to do, as game masters, is provide detailed information as to what kind of character you are — your abilities, power, and goals — but then allow you as much freedom as you want as to how you portray yourself. You're given a character packet that has a sheet or two describing who you are, what you know, and what you have. These "blue sheets" contain the background you should know pertinent to your character, the history of your particular neighborhood, and what's going on in your planet, political faction, or

corporation. This is where the literature aspect of interactive literature comes in. The beginnings of these games derive from writers interested in storytelling. The literature is in writing characters creatively, something that you would delight in *reading* as well as playing. Instead of just saying you are X, we put



Reading character sheets in a hotel lobby.





2. Your Character

a. The Character Sheet

Your Character Sheet is the most important part of the game for you. It contains information about the character whose role you are playing. It will contain some information about your identity, your background, your abilities, your goals, and your current possessions. It may also describe other characters whom you know, special knowledge that you have, and so forth. The information on each point may be sketchy or detailed. This is deliberate. No one is told everything. For example, some characters may have very specific goals but no obvious planned means for achieving them. These characters must gather information to learn how to achieve their goals. Others may have detailed backgrounds, likes, dislikes, and abilities, but only hints as to what their goals are. These characters must choose their own goals after discovering some of the possibilities.

All character sheets are different. The information they give you is the truth as your character sees it. If your character sheet says you possess a certain item, then you definitely possess that item, but if it says that salt is the most valuable thing in the world, then that's your opinion.

b. Abilities

All characters have some abilities, expertise, or skills that may or may not be useful.

Abilities that affect other players in an unusual way, such as thief skills, psionic powers, and special combat skills, are printed on Special Ability Cards. To use such an ability, show the card to the parties affected and follow the instructions on the card.

Not all your abilities are on cards, however. Such abilities as technical expertise, espionnage skills, forming psionic links, and operating a vehicle are not things you "use against" another player in a face-to-face encounter. These abilities do not have cards, but will instead be described in your character sheet. The description may be very detailed or only vague hints. In fact, you may have abilities that you don't know about at all.

To use, or try to use, character abilities, see a gamemaster. The gamemaster will tell you the results. You never need an ability card in order to try to do something.

One example of this is constructing devices. Besides the necessary parts, constructing a device requires two things: time and expertise. A GM can tell you if you have all, some, or none of the expertise needed. If you don't have it, you will have to try to find another person who can help you or a reference source to improve your own knowledge. If you have the expertise, the GM will tell you the time required. It may be a long time, in which case your character could perhaps use non-real-time days during he or more of the game breaks.

Special Knowledge

e sheets in your player packet contain background information about the id. Some of it is common knowledge, to fill you in on the game's ng. Some of it, though, may be rare or secret knowledge. Your

a convincing, even enjoyable, story behind it.

Every character starts out with "items," which are usually represented by index cards. These are powers, instruments, or resources. You may have an index card that says "one .45-caliber automatic, two shots spent already." Real-world physical combat is against most of our principles, so in combat you don't actually touch the person at all. It's all conceptual. If you're shooting at a person, bullet and laser beam wounds are represented by a little stick-on dot which you put on the opponent's shoulder.

Information exchanging is really what happens in these games. You use information to manipulate events toward your particular end. Every character has a series of goals. Maybe your goal is to find who has two ounces of platinum. Sooner or later you'll find the guy with two ounces of platinum, but then you have to cut some sort of deal to get him to give it to you. Other goals are more difficult, like: make sure that they decide they're not going to arm the nuclear arsenal.

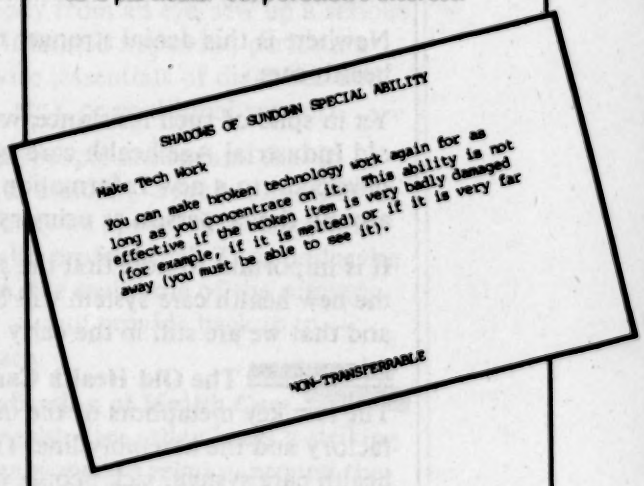
The way it works is that you stop someone in the hall. "Ah, I've been meaning to talk to you. Come with me." You pull them aside and say, "A friend of mine tells me that you have some radio parts that I could use for building a transmitter." And she answers, "Well, maybe yes, maybe no. What's it to you?" You say, "Well, I have some chemicals you might need in order to finish the recipe of that large project I know you're working on. Perhaps we can arrange some sort of a deal." Everybody has something that somebody else wants. Sometimes it's a simple exchange of one thing for the other. But there are other, more exciting levels. You can be double-crossed, or encounter any of the cliches that you see in detective movies and suspense movies.

Cheating is okay, if your character is a cheat. But there are also impossibly good characters in games who *must* tell the truth, and who have to do the right thing all the time. For example, in one game we wrote a character named Siegfried who was big, stupid and incredibly good. This is a very difficult character to play.

We have no real idea how a game is going to end up. All we know is at what point the game will stop. A game may be designed to conclude after players have elected the new hierarchy for the local galaxy. But up until then what happens is only hinted at in the character sheets. The characters have a life of their own. To keep things from getting completely chaotic, there are game masters who act as arbiters. When things are getting a little out of hand, then they step in and tweak the game. In the case of too many murders happening, they introduce police. (Incidentally, police get played very well, because it's the best way to find out what's going on. You arrest people, you ask them what's going on, and you have the absolute power to just drag anybody in for questioning. Great!)

Interactive literature requires personal interaction and the ability to be a bit flamboyant. It's a chance to be somebody completely different, in a completely different place — for a whole weekend. It sounds vague to say it's a lot of fun, but it's a lot of fun.

We're writing a new game called Fast Forward. It's based within the cyberpunk science fiction genre. In that scenario everybody is at some indeterminate time in the future in a small chunk of what's left of the metropolitan axis on the East Coast called the Sprawl. There are youth gangs, there are companies doing corporate warfare, and there's a bunch of kids hacking a big computer network. In the game we'll have our own PC computerized bank in the hotel, a kind of a credit-card system, where all the credit transfers for the game will occur. It'll be very susceptible to players' hacking. In fact some players will HAVE to hack around, if their characters are hackers. Some characters will play artificial intelligences, devoted solely to a particular corporation's interest.



There's a book by Larry Niven and Steve Barnes, called *Dream Park**, which envisions a giant fantasy park. When you fight the monster in its lair, sure enough this giant dragon comes out of the cave. And if you're going to shoot it with energy bolts, well, energy bolts come out of your gun. We don't have that kind of technology yet. But we do have a friend in Connecticut who's been experimenting with running interactive literature outdoors in big parks, and that's something we'd like to explore next. Contact us at the Society for Interactive Literature, 130 Morrison Avenue, Somerville, MA 02144; 617/623-0133. ■

* *Dream Park* by Larry Niven and Steven Barnes, 1982 (Ace Books/Berkeley, New York).

Photos by Jeanne Carstensen

HEALTH IN THE INFORMATION AGE

SHARING THE UNCERTAINTY

BY TOM FERGUSON, M.D.

IN HIS BOOK *Megatrends,* John Naisbitt writes: "It always surprises me that so many people passionately resist the notion of an economy built on information, and, despite a wealth of evidence, deny that the industrial era is over."

Nowhere is this denial stronger than in the realm of health care.

Yet in spite of such resistance, we're moving from an old Industrial Age health care system (built around the physician) to a new Information Age system (built around the layperson as primary provider).

It is important to note that the shift from the old to the new health care system will be a long-term process, and that we are still in the early stages of this shift.

The Old Health Care System

The two key metaphors of the industrial age were the factory and the assembly line. Thus, under the old health care system, sick people were seen as the "raw material" which passed through the health care "factory." Patients who stepped onto this medical assembly line were subjected to a standardized medical routine, and were expected to comply with their doctor's directives. Those who attempted to seek detailed information about their condition, consider unorthodox treatments, or question the safety and effectiveness of conventional therapies were typically dismissed as "troublesome" or "uncooperative."

Under the old health care system physicians — myself included — were trained to behave as though their authority and knowledge were virtually boundless. I was, on more than one occasion, told in so many words that I should act as if I had — or at least had access to — solutions to all my patients' problems. Such an attitude, my instructors advised, inspired patients' confidence.[1]

As beginning medical students, my classmates and I learned to ignore the dark side of modern medicine. Abusive treatment of patients by some instructors was accepted without comment. A good number of the deaths and injuries due to negligence or incompetence were simply ignored. Injuries resulting from medical treatment were rarely discussed. There are medical journals on virtually every specialty under the sun, but there is, to this day, no *Journal of Iatrogenic* (Doctor-Caused) *Disease.*

We were encouraged to think of the human body as an intricate and complex machine, to speak in terms of lab values and test results, not of human suffering. We were actively discouraged from demonstrating too much interest in the patient as a person. We spoke of the gallbladder waiting in room 703, or the uterus in 1044. And it was always taken for granted that for any case there was one and only one proper treatment — the "one ill, one pill" hypothesis.

The New Model

In the old physician-centered system, health care begins when a person enters a doctor's office. The new self-care-centered system realizes that professional care is only a small part of the whole health care picture.[2]

The new system assumes that self-care — the process by which we all gather health information, seek health advice, choose healthy or unhealthy behaviors, diagnose and treat our own ailments, and make use of professional services when necessary — is the very foundation of health care. According to this view, health care is no longer just something doctors do. It is something we all do. And we do it every day.

Tom began reviewing health books for this magazine in 1976. Whole Earth could never fit in all the great stuff he came across, so while still a Yale medical student, he founded the bimonthly Medical Self-Care *($12.97/year from P. O. Box 1000, Point Reyes Station, CA 94956).* MSC *has grown from an ambitious student project into a worthy, national journal that advocates direct participation. Likewise this article. Readers are invited to send comments to Tom Ferguson at 3805 Stevenson Avenue, Austin, TX 78703 (512/472-9902).*

—Kevin Kelly

This new self-care-based system assumes that when people first become conscious of a new health problem or concern, they immediately begin to seek information and advice and to consider tools they might use to solve the problem themselves. The vast majority of health problems are never seen by a professional.

In one of the most interesting studies of self-care, English medical student Christopher Elliott-Binns sat in a general practitioner's office and interviewed 1,000 patients who had come in with new problems. He asked each one (1) if they had sought or received information or advice about their problem, and (2) if they had used one or more self-care treatments before coming to see the doctor.

Ninety-six percent answered yes to one or both questions: eighty-eight percent said they had obtained information from friends or family members. Fifty-two percent had used at least one form of self-treatment. Many had also sought information in books, magazines, or other media. The subjects frequently received information from multiple sources: One patient, a boy with acne, had consulted eleven different sources.

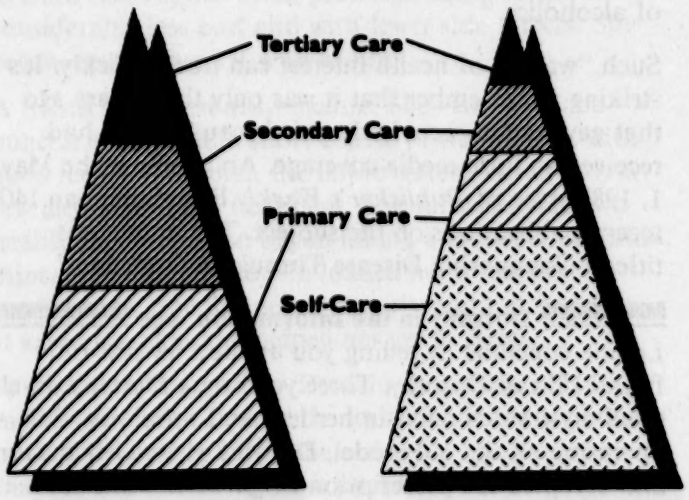
In the opinion of a panel of physicians, the information and advice the subjects obtained was quite sound. The best advice of all came from pharmacists, nurses, and relatives. Among family members, wives provided the best advice.

Elliott-Binns concluded: "It is most interesting that 96 percent of patients had received advice or treatment before coming to the physician. Is it justifiable to call the family doctor the source of primary care?" Clearly it is not. As this study makes dramatically clear, the real primary care is self-care.[3]

A New Map of Health Care

As Figure One indicates, health care has traditionally been divided into three levels: *primary providers* (who have first contact with the patient), *secondary care practitioners* (specialists), and *tertiary care* (highly specialized care usually provided in large medical centers). But this "map" completely ignores self-care, the foundation of all health care (see Figure 2).

The new health care system considers laypeople the primary providers of health care. All professional care is seen as secondary or tertiary. The self-care sector is many times the size of the professional care sector. Economist Simon Rottenburg has estimated that if only two percent of over-the-counter drug consumers chose to visit physicians rather than using self-medication, they would require an additional 292 million doctor's visits per year, a 62-percent increase in office visits.[4] The implications are immense: if self-care information and tools can even slightly increase laypeople's ability to care for themselves, the demand for costly professional services will decrease dramatically.



Medical Information Flow

Under the old health care system, people were frequently forced to seek professional care simply because they had no other way of obtaining the information they needed. The new system suggests that a doctor's visit is a singularly inefficient way to communicate medical information.

The primary goal of health professionals should be to supply layfolk with the health tools, skills, information, and support they need. Within this new health care system, all the people who provide health information — TV doctors, newspaper columnists, health magazine editors, health journalists, authors of health books, medical librarians, etc. — are all considered health workers.

But if writers and journalists and librarians are to become health workers, what will be left for the doctor to do?

Plenty. Health professionals become advisors. Laypeople with a health problem or concern will generally continue working within the self-care sector until they have exhausted their available resources. They can then choose to consult a professional clinician in order to avail themselves of the professional's tools (e.g. CAT scanner, x-ray machine, prescription drugs, etc.), skills (to remove a foreign body from an eye, sew up a serious laceration, remove an inflamed appendix, perform a colonoscopy, etc.), advice (essentials of diagnosis and treatment alternatives, etc.), or emotional support.

Informed, motivated laypeople understand that in some cases (e.g. an auto accident, a brain tumor, or an inflamed appendix) it may be appropriate to work in partnership with a health professional. Thus under the new health care system, the main role of the primary clinician is to support — and provide backup to — self-provided health care.

The Protestantization of Health Care

What's happening in health care today bears a striking resemblance to what happened in religion around the time of the protestant reformation. Before Luther's time, there was only one Christian Church, and access to God was available only via the priests. Those who refused to go along with the priests' interpretations faced the threat of excommunication. The protestant revolution saw the demise of this old, closed religious system and the birth of a new, open system, under which laypeople were were given the final authority to interpret the evidence themselves and to deal with God in their personal lives without the mediation of the priesthood.

The priest's role in healing in the early church is well captured in the following passage by a visitor to a fifteenth-century healing shrine:

The priests and postulants who serve the shrine are organized into many echelons, each having its own clear insignia of rank. They communicate with one another in a special language, unintelligible to the layman, and prominently display on their person healing amulets and charms. . . .

HOW TO GET INVOLVED IN SELF-CARE

BY TRACY COSGROVE
of Planetree Health Resource Center

CONSUMER INFORMATION concerning most significant (and even rare) diseases is available from many public and private organizations. Other resources include:

Staff at Planetree Health Resource Center assist clients in doing in-depth research.

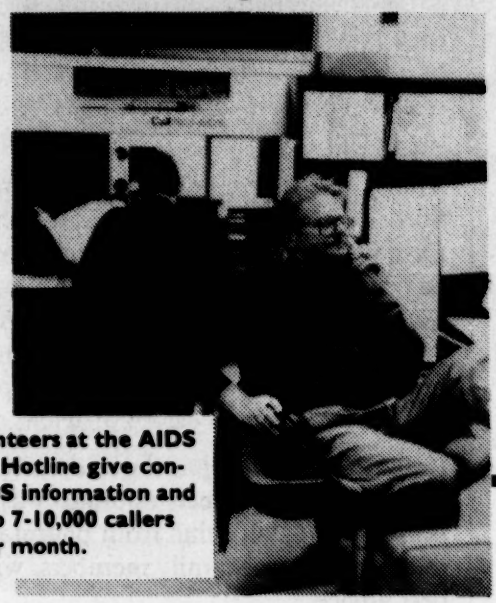
• *Public libraries.* Libraries provide access to basic medical reference books. Examples include *Encyclopedia of Associations,* a national directory that lists health organizations, and the *Consumer Health and Nutrition Index,* which provides references to the latest articles in the growing area of consumer health literature. Publicly funded medical school libraries are another important source of health information and can provide access to *Index Medicos,* an index to international medical literature. Some public and medical school libraries offer computerized literature searches of medical databases.

• *Consumer Health Information Centers:* These are an excellent source of health and medical information since they are designed to provide consumer access. As the self-care movement grows, more centers like these will open.

Planetree Health Resource Center: 2040 Webster Street, San Francisco, CA 94115; 415/923-3680.

The Center For Medical Consumers: 237 Thompson Street, New York, NY 10012; 212/674-1705.

• *Self-Help Clearinghouses* help callers locate a support group for their specific health problem, or can assist in the formation of a group when none is available. The National Clearinghouse will refer



Trained volunteers at the AIDS Foundation Hotline give confidential AIDS information and referrals to 7-10,000 callers per month.

The shrine itself consists of a complex series of chambers. The outermost sections of the shrine are kept open to the uninitiated. But even the high priests themselves may not enter the inmost chambers, the holy of holies, until they don special costumes and undergo purification rituals. For it is here that the most dramatic and difficult healing rituals are conducted. So jealously guarded are the mysteries here revealed that the uninitiated are admitted only after being rendered unconscious.

I've been pulling your leg. The passage above (edited for clarity and conciseness) is by Jerome Frank of the Johns Hopkins School of Medicine, and is intended as a description of the modern teaching hospital as it might appear to "an anthropologist from Mars.[5]" Contemporary physicians may not be totally unlike fifteenth-century priests in their susceptibility to arrogance, self-importance, and an ill-founded sense of infallibility.

A movement toward therapeutic diversity is an important part of the movement toward a self-care-based system. Just as religious layfolk can now freely choose to be Baptist, Lutheran, Catholic, or Buddhist, responsible health consumers should feel free to draw upon bioscientific medicine, surgery, pharmacology, psychotherapy, Chinese medicine, homeopathy, body therapies, yoga, and other healing traditions in deciding which health "package" is right for them. There is frequently more than one right way to do things, and under the new health care system, the belief system of the client becomes more important than the belief system of the clinician.

Conquering Disease Through Knowledge

One of the biggest contributions to self-care knowledge may come from an unexpected direction. I recently had occasion to interview self-help pioneer Ed Madara, director of the New Jersey Self-Help Clearinghouse. Working from this crowded office overlooking New Jersey's Interstate 80, Ed and his coworkers help 10,000 callers a year find — or start — the self-help groups they need.

Ed's database includes listings of thousands of support groups around the state — and hundreds of model groups elsewhere. If there's not an appropriate group nearby, they ask callers if they'd like to join with others to discuss forming a group. If so, they keep the caller's name and phone number and pass it on to others with similar concerns. They also offer continuing telephone consultations to help get the new group up and running. The clearinghouse has helped callers form more than 400 new groups.[6]

"Calls for groups on specific subjects seem to come in waves," Madera observes, "frequently as the result of stories in the media. We've recently been flooded with inquiries for groups for young widowed persons — mostly the result of a piece in the *New York Times.* We're getting a lot of calls about Epstein-Barr virus right now — most of them saw the recent *Newsweek* story. A number of new groups have been formed by women who have read Robin Norwood's book, *Women Who Love Too Much.* And two other groups have roughly doubled in popularity within the last year — groups for manic-depression and for the adult children of alcoholics."

Such "waves" of health interest can travel quickly. It's striking to remember that it was only three years ago that gay leaders were in despair because AIDS had received so little media coverage. An article in the May 1, 1987 issue of *Publisher's Weekly* lists more than 140 recent publications on the subject. The article was titled "Conquering Disease Through Knowledge."

Dorothy in the Information Age

Let me conclude by telling you about a 68-year-old friend I'll call Dorothy. Three years ago, Dorothy developed mysterious pains in her legs and shoulders. Still operating on the old model, Dorothy visited her doctor and accepted the prescription he gave her without question. But the drug produced unpleasant side ef-

you to groups in your own state.

National Self-Help Clearinghouse: 212/840-1259.

• *Government-Sponsored National Health Organizations:* The Office of Disease Prevention and Health Promotion operates the National Health Information Clearinghouse (NHIC). NHIC provides a vast information and referral network to disease-specific health organizations and publication sources. Another component of NHIC, the National Information Center for Orphan Drugs and Rare Diseases, gathers and disseminates information on these topics specifically.

Information Clearinghouse/National Information Center for Orphan Drugs and Rare Diseases: P. O. Box 1133, Washington, D.C. 20013-1133; 800/336-4797.

• *Specialized Health Coalitions:* As individuals and organizations, consumer health groups are forming coalitions to address the need for information and self-care.

This coalition of voluntary health organizations, support groups, researchers, physicians and private citizens provides information and referral services for rare disorders:

The National Organization for Rare Disorders: Fairwood Professional Building #100, Rt. 37/Box K, New Fairfield, CA 96812; 203/746-6518.

This organization informs and educates both consumers and professionals about patients'-rights advocacy.

• *Online Sources of Medical Information and Referral:* Consumer access to computerized health and medical information is becoming more common. For people without expertise or equipment, public or medical school libraries sometimes provide access to computerized information systems. Information centers like Planetree also offer this service.

Types of information sponsored by the National Library of Medicine include:

DIRLINE: an online directory of national health organizations and associations, research centers and support groups.

MEDLINE: a database of recent articles in medical literature.

PDQ: a database of the latest cancer information supplied by the National Cancer Institute.

Contact the MEDLARS Management Section, 8600 Rockville Pike, Bethesda, MD 20894; 800/638-8480.

The Combined Health Information Database (CHID) provides references, journal articles, books, and audiovisual materials on arthritis, high blood pressure, health education and digestive diseases. CHID information is accessible through Bibliographic Retrieval Services.

Combined Health Information Database: 2115 East Jefferson Street #401, Rockville, MD 20852; 301/468-2162. ■

fects. Her doctor substituted another medicine, which produced a different set of side effects. A third drug produced similar results — some relief, accompanied by annoying side effects. After three months of medical treatment, Dorothy's condition was still undiagnosed, although her pain was markedly reduced. Her medical expenses for that period looked like this: Doctor's visits — $225. Medical tests — $92. Drugs — $86. Total — $403.

Earlier this year the pain returned. But by this time Dorothy had become a self-care enthusiast. She resolved not to leave things totally up to the doctor. She was ready to take her health care into her own hands.

She began, again, by visiting her physician. "We're still not sure exactly what it is," he told her. But when he reached for his prescription pad, Dorothy held up her hand to stop him.

"Please write down what my choices are," she told him. "I want to consider *all* my options."

Her doctor wrote down the names of three drugs, the same three she had taken before. Dorothy went to the library and read up on each of them. She was surprised to learn that aspirin often produced equal results at considerably less cost and with fewer side effects. She began treating herself with aspirin.

A friend suggested acupuncture. She visited an acupuncturist and had a short course of treatments, with good results. However, the improvement lasted only a few days after each treatment. She subscribed to two health magazines and began taking a multiple vitamin/mineral formula. A cousin loaned her a relaxation/healing tape. She listened to it every night at bedtime. It eased the pain and helped her get to sleep.

At a friend's suggestion, Dorothy began an early-morning exercise class at the local municipal swimming pool. It seemed to help. She ordered a book on rheumatism and an information packet on rheumatic conditions from a consumer health information center. Another friend recommended a heating pad that supplied moist heat. Dorothy found it extremely helpful. This time her medical expenses looked like this: Physician's visits — $45. Acupuncturist — $60. Aspirin — $4. Self-care information (three books, two magazine subscriptions, one information packet, one cassette tape) — $71. Self-care tools (heating pad) — $36. Total — $216.

At the end of three months her symptoms had improved remarkably. And Dorothy had entered the information age.

The upside of the shift from the old physician-centered health care system to the new self-care system is that we get to be responsible for our own health. The downside is that we will have to be.

We will have to give up the illusion of having an all-knowing, Godlike physician on 24-hour call at all times. The new system forces the self-caring individual to share the burden of uncertainty we physicians have carried all along. There are many, many cases in which physicians simply do not have all the answers. Laypeople won't either. Those who choose to follow the self-care path must give up the false security of the professionalized medical model and accept all the fragile beauty and the unavoidable uncertainty inherent in human life. ■

References

1. While it is true that some patients may have more confidence in a doctor who pretends to be all-knowing, such an attitude induces needless dependence by undermining laypeople's confidence in their ability to manage their own health affairs.

2. Williamson, John D., and Kate Danaher, *Self-Care in Health,* Croom Helm London, 1978, p. 39. Demers, R.Y., et al., "An Exploration of the Dimensions of Illness Behavior," *Journal of Family Practice,* 1980; Vol. 11, pp. 1085-1092. Levin, Lowell S, and Idler, Ellen, *The Hidden Health Care System,* Ballinger, Cambridge MA 1981.

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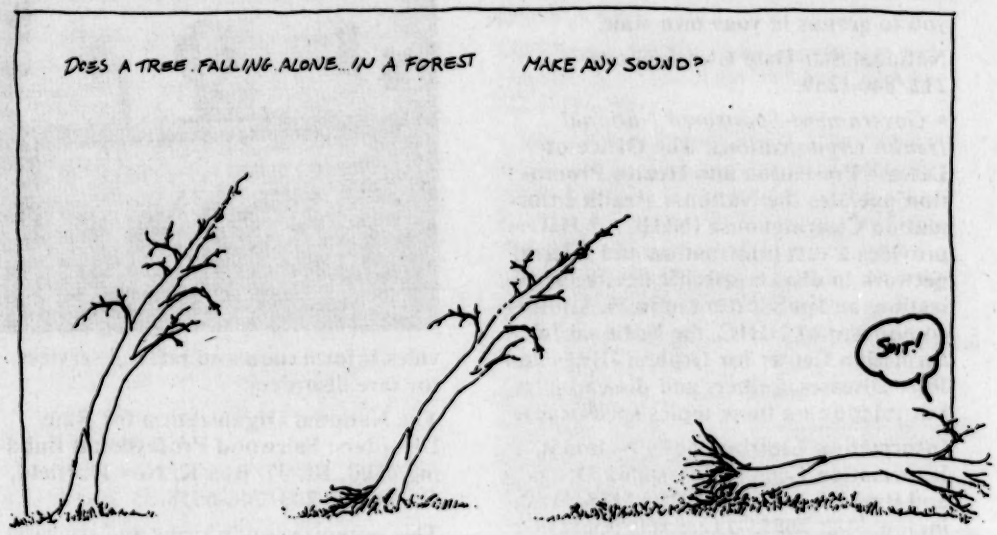
4. Rottenberg, Simon, "Self-Medication: The Economic Perspective," in *Self-Medication: The New Era . . . A Symposium,* March 31, 1980, The Proprietary Association, Washington, Washington D.C.

5. Frank, Jerome, "The Faith that Heals," *The Johns Hopkins Medical Journal,* Vol. 137, 1975, pp. 127-131. Quoted in Ornstein, Robert, and David Sobel, *The Healing Brain,* Simon & Schuster, New York 1987, pp. 75-76.

6. The Self-Help Clearinghouse: Ed Madara, Director. St. Clares-Riverside Medical Center, Pocono Road, Denville, NJ 07834; 201/625-9565. In New Jersey, call 800/367-6274.

BACKSCATTER:

echoes from readers back to *Whole Earth Review* (27 Gate Five Road, Sausalito, California 94965)



Wanted: a soul

There is an esoteric teaching that says man is not born with a soul, only the possibility of one. He is given also potential characteristics that if realized through constant choice & decision, bring about something real & time-transcending — a Being of personality. Perhaps it is not appropriate to make an analogy between man & a magazine, but I'm feeling genuine sadness & some perplexity at the state of *Whole Earth Review* & I think it has something to do with the soul.

The mind-embracing, heart-transcending soul eludes easy definition, but of it this can be said — it *can be recognized* by other souls, & *it can't* be *faked* to genuine souls. Over the years you've received letters or occasionally printed articles (the man who returned every issue you'd ever printed because of an article on Muktananda; the Russian Orthodox priest who was incensed at your clever Ameruss flag) where the passion of the writer was so genuine, his soul so obvious, that it immediately delineated the limits of a magazine dedicated to the proliferation of ideas for ideas' sake.

This proliferation of ideas without roots, of information unconnected to meaning or experience, & of lives devoid of significance, is the curse of our Age. If it is true that we are only on the brink of the Information Age, then the curse is just beginning too.

As we Americans know nothing about freedom & much about license, I feel that our press knows a great deal about license & little about responsibility. To continually print the sensational, the bizarre, the weird, & the mind-numbing catastrophe (I'm thinking of *Whole Earth Review,* too) just gives more credibility to a superficial world dominated by a superficial man.

I would not have continued my subscription for these years had I not felt something important was trying to be born. You've certainly gone through some major transitions, & always the specter or impending financial doom loomed overhead, but you were striving for something.

What?

. . . I think it is the soul in man, or even his potential soul, that wants to be inspired, touched, & moved, & I think it is the soul of man *that* inspires, touches, & moves. We are calling out to each other, let us not be deaf to our depths.

I have chosen not to renew my subscription not out of anger, but for those reasons written of above — of perplexity & sadness.

Evan Roberts
Ashland, OR

When lefties are victims

Though Greg Brecht denies a "bias against communism" in his "World's Worst Massacres" (*WER* #56, p. 74), certain omissions make one wonder.

Estimates of the number of Indonesian communists killed after the downfall of Sukarno range from .5 million to 1 million. Though he includes mention of the 6 million Jews and .5 million Gypsies who died in the camps of Nazi Germany, he leaves out the 1.5 million German communists and other leftists who also died there. The total figure for the Holocaust is usually estimated at 11 million.

Brecht's compilation is useful and saddening, but it would be stronger if he included leftists when they are the victims, in addition to when they are the perpetrators, of massacres.

Jim Gasperini
New York, NY

Malign neglect

I hope this is one of a flood of letters pointing out that Greg Brecht's "The World's Worst Massacres" in *WER* 56 includes the Spanish conquest but leaves out a massacre closer to home — our own genocidal war of attrition against Native Americans. Perhaps Mr. Brecht passed over this episode due to the difficulty of estimating aboriginal population levels, since Native Americans were killed faster than they could be counted. Or perhaps because of the contribution of epidemic European diseases, which makes it difficult to distinguish violent deaths from more "natural" demises. Regardless, I am appalled.

The problem is not with Mr. Brecht; I am sure his intentions were good, and his list is a valuable resource. However, the very fact that the violent conquest of our own continent by our own ancestors could be overlooked in compiling such an article is disturbing. Since the end of the "Indian Wars," white America's attitude towards Native Americans has alternated between mindless romanticism and malign neglect. Neither is acceptable.

Mark McDonough
Providence, RI

Inflating the menace

Re: the "500,000" victims of the "Hanoi Red Terror" . . . That number began as 50,000 in a 1969 Nixon speech, and by 1971 had become a half million. Noam Chomsky analyzes the event in his book *The Washington Connection* (*CQ* #41) and concludes the actual number was between 3,000 and 15,000.

The quality of Brecht's scholarship and his "Red Terror" labeling are certainly on a par with current White House disinformation events, and deserves equal treatment.

Dick Fugett
WER Distribution

Editorial typo

I assume that the reference to "West Iran" in "The World's Worst Massacres" was actually intended to be a reference to "West Irian," i.e. West Papua (or "Irian Jaya," as the Indonesians call it).

Walt Noiseaux
Syracuse, NY

Author responds

The 1965-66 events in Indonesia *should* have been on the list. 750,000 is almost certainly too high a figure, though I've seen ranges from a hundred thousand to a million. The item was on a rough draft and was lost in preparing final copy. I do not accept the view that the killing was with U.S. approval, though undeniably we were involved. Ethnic animosities run deep, and much of it was a mass pogrom against ethnic Chinese — such animosity exists most notably in Malaysia right now, where it could boil over into large-scale massacre soon.

WER made an error, though a small one. "West Iran" should have been "West Irian." Sallie [Tisdale] said she "corrected" it to read "Iran." West Irian is the Indonesian name for the former Dutch half of New Guinea where the Indonesians are committing ecocide and pushing aside the native Melanesians in a small but bloody little war with genocidal overtones.

I'll stick by my guns on the Hanoi Red Terror. I've looked at the claims it is a lie, a disinformation campaign. There's no doubt the Right cheerfully lies every chance it gets and happily makes such claims. But it looks to me like the truth. I happen to think the right side won that phase of the war. I happen to think the Vietnamese are better off under the current regime than under the French or under the Southern rulers. But it seems to me that crimes by the side I agree with are no less criminal than those committed by the other side. That figure [500,000] seems to me to be credible. There are ranges, usually highly partisan ones, from a few to a million.

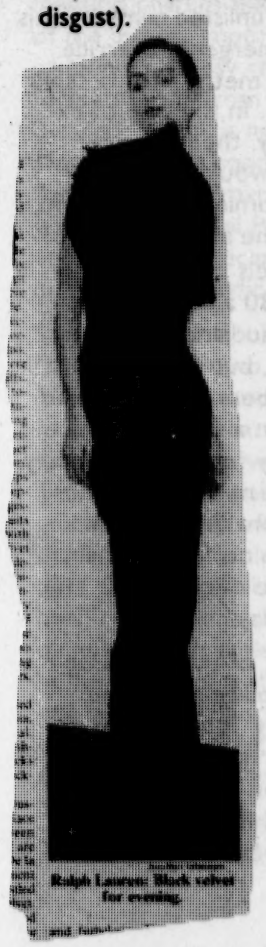
I left out the American Indian intentionally. I would take Zinn's figures with a grain of salt. There are extremely wide-ranging estimates of the pre-Columbian population for all the Americas. I've looked at these figures in some detail, and it seems to me that for the region from Sonora north, all the way to Greenland and Alaska, about a million is a credible figure. The totals massacred, killed, taken for slavery (some thousands were sold into slavery in the West Indies, like the Carolina Yamassee people) would probably be in the low hundred thousands. What killed the Indians was European diseases. We stole the continent from the native people at the same time the Russians stole Siberia from *its* native people. The Russians killed some thousands of natives too, but disease killed far more. My intent was to list paroxysms of violence. In terms of killing ferocity, the Spanish in Peru, Mexico, the Indies and against the Maya were, I think, far more deadly. In the end, the result has been the same — dispossession from the land. . . .

Greg Brecht
Green Bay, WI

Felt marker morality

In issue #56, you published a letter from someone in Saudi Arabia who complained about the censorship there. I thought that perhaps you might like to see an example of this censorship. I have a friend who has been working in Saudi Arabia for the last few years. Recently he sent me some examples of censorship, part of the daily fare that he is subject to. I have enclosed some of these examples for your amusement (and disgust).

Peter Sabatini
Irvine, CA



Mathematical proof of Murphey's Law

Basic Murphey's Law as stated:
"If a thing can go wrong — it will."

The proof: Assumptions —
A. There is only one way a thing can "go right;" every other way is wrong

B. There are an infinite number of ways a thing can occur.

Therefore — the chances of anything "going wrong" are $\frac{\infty}{1}$, or infinity divided by one.

This proof occurred to me one day as I was working alone on a 70 ft.

(continued)

tower, when the second piece of scrap pipe I tossed down cut my power cord for the second time.

Hubert Beach
Saline, MI

The heron test

There are two small towns on the east coast of Vancouver Island about fifteen miles apart, Chemainus with a pulp mill and Crofton with a sawmill. The former uses a multitude of chemicals, the latter employs fungicides on wood to be exported, to retard rotting. Between these two sites, the habitat of many birds, it was found in the course of a (Canadian) Federal Department of the Environment study that sixty herons had nested this year. They collectively produced 167 eggs, every one of which they destroyed spontaneously.

Now herons have a very high percentage of successful "reproductions;" around 90% compared to 30-40% for most other avian species. This action seemed unprecedented, and ominous for humans. A Vancouver wildlife biologist compared the relationship between herons & man to that of the canaries & the miners in the nineteenth century. (The miners would take canaries down into the mineshafts in small cages. If the canary keeled over there was poisonous gas around.) In other words if herons are refusing to reproduce we should follow suit: serious danger exists. The environmental study, naturally not yet released, suggests that dioxins are being released from both the pulp & the sawmills, contaminating the marine food chain. Apparently the study is being released in September & I shall follow it up, but meanwhile do any of your readers have any similar information?

Roger, Wanda & the children
Duncan, BC

Letters to the answering machine

The local paper in southeastern Oakland County, Michigan, "The Daily Tribune," has a very popular section called "Soundoff." People phone in comments about anything whatsoever to an always available answering machine. The paper prints them without names, just their location or an alias. Popular topics have included Jim and Tammy Bakker, the mail delivery, barking dogs and roaming cats, mail carriers walking across lawns, parking on the street, and local political campaigns.

"Soundoff" has become a community forum. People dialogue back and forth with each other, referring to what they've previously read. My wife and I sit around the kitchen table sometimes chuckling, sometimes roaring and once in a while crying over the comments. I write a weekly editorial column for the paper and "Soundoff" is where I look for feedback.

Ted Braude
Royal Oak, MI

Getting off our asses

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John Benecki
Portland, OR

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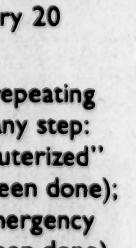


Sweepstake crossovers

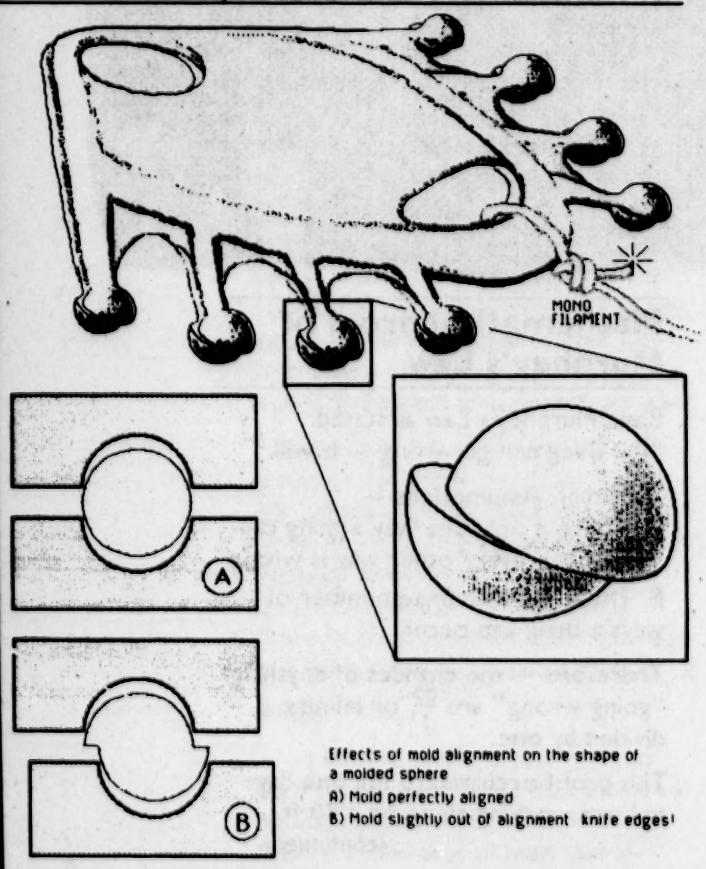
About 18 months ago here in Atlanta, a string of phone-related accidents caused much confusion and consternation in the lives of at least one family.

To begin with: one of these "computerized" telephone sales pitches was calling through a mid-town exchange offering "you have won a free Bahamas vacation. Just call xxx-xxxx!" As it was walking through the exchange, it hit an unlisted number. This phone was an emergency override number into the metro Atlanta cable television system. In the case of extreme emergency, the Mayor or head of the CD would call this number. The incoming phone line would override the audio portion of ALL cable channels currently in use. It was about 10:30 a.m., so there wasn't as big an audience as if it had been prime-time, but yes, all of Atlanta's cable subscribers were informed they had just won a free trip. Chaos ensued. Especially for the poor family whose telephone number was one digit different from the call-back number. Through no fault of their own they got one call every 20 seconds all that day.

Reducing the risk of this repeating itself could take place at any step: Legislation limiting "computerized" sales pitches (this hasn't been done); a security code on the emergency phone number (this has been done) and for the poor lady getting the

The shoddy cutting edge

I know this is a bit like beating a dead horse, but some years ago (around 1970, i guess) i had an experience which gave me an insight into why so many women were having problems with the Dalkon shield.



Effects of mold alignment on the shape of a molded sphere
A) Mold perfectly aligned
B) Mold slightly out of alignment knife edges!

A friend of mine was kept up all night in pain (not the first time) and i suggested that she really go and have the thing out. But i also asked that she have the physician let her take it home with her after it was removed.

When i examined it, i was shocked. The thing had been molded in a cheap two-piece mold, with no more quality control than a toy from a Cracker-Jack box. The mold halves of the unit i inspected had been out of alignment slightly, giving rise to knife edges on the periphery of the spheres, as my accompanying illustration shows. the device showed no evidence of having been polished or smoothed in any way after leaving the mold, nor even inspected by anyone in the health provider chain, for that matter.

Lest women feel they have been singled out by the medical establishment, my finding a lot of rough edges on cardiac pacemakers while working at Duke medical center leads me to feel IUDs are not the only devices subject to this sort of abuse.

Alex Funk
Durham, NC

Paul Hawken Predicts Collapse

Some of the most popular stories we have ever run have been Paul Hawken's sterling economic analyses. They invariably prove to be dead on. He scored a bullseye recently with his earlier prediction of a credit collapse. In an article seven years ago (Summer 1980 CQ, p. 53) titled "What's Economical?" Paul described the coming credit collapse in detail. When pressed he said, "If I were to predict a date, I would say October, 1983, or October, 1987." I talked to Paul on October 19, 1987, after the Dow-Jones index fell 500 points in one day, and he said that his prediction was not a matter of psychic telepathy as much as calculations based on the cycle theories of the Austrian economist Kuznet. Interested readers may find further prophecy in the lead article of the Fall 1985 issue which Paul wrote, "We're In A 1920s Economy." —KK

wrong numbers, not much. If readers are unfamiliar with the design process that went into the design of the Touch-Tone (TM) keypad, it makes interesting reading. The designs were a speed vs. accuracy trade-off. The lady could only wish that The Labs had put a higher priority on accuracy.

This was sort of an information-age Orson Welles "War of the Worlds."

Brent Laminack
Atlanta, GA

Lovers of the stinking rose

It was with great amusement that I read [in *WER* #54, p. 45] of Les Blank's firm conviction that the Wild Tchoupitoulas go down better with red beans 'n' rice. No doubt. But you didn't mention one Les Blank film which is of the utmost importance to all Hispanophiles, Gypsy rights activists, & folks suffering from excess mucus. It is called "Garlic is as Good as Ten Mothers," & it contains a great flamenco performance by the late, great Anzonini del Puerto, whose eulogy & garlic recipes can be found in *The Official Garlic Lovers Handbook*.

Senor del Puerto, bless his wild little heart, was a Gitano, one of the Roma (Gypsies) who came up into Andalucia from North Africa. While nowhere near as psychic as we Welsh people are, the Gitanos perform bravely & gracefully in the bullring (their nicely-shaped behinds look good in those tight pants), make beautifully inlaid hand-crafted flamenco guitars, are quite knowledgeable about herbal home remedies featuring lots 'n' lots of garlic. They dance divinely. And they are great cooks, heavily spicing their exotic creations with plenty of you-know-what.

The book is available from an organization called Lovers of the Stinking Rose c/o Aris Books, 1621 5th St., Berkeley, CA 94710. A lifelong membership in this club (which is not an Aris Books advertising gimmick, but a real club with chapters & meetings) costs just $25 and includes the above-mentioned book, along with a 2-year subscription to the newsletter, "The Garlic Times" (quarterly), & special discounts on various mail odor (sic) items. To continue receiving the newsletter after 2 years, order a mail odor item (no minimum) to let them know you're still interested. The book is available as a separate mail odor item ($7.95 non-members, $6.95 members) & the cassette (specify Beta or VHS) of Les Blank's "Garlic is as Good as Ten Mothers" is $49.95 to non-members, $45 to members.

Charlene Bevins
Seattle, WA

Adopting irresponsibility

As a person who was adopted away shortly after birth, I am always interested in stories about adoption, from any angle. John Taylor Gatto's cri d'ego (*WER* #56, p. 52) quite frankly fried my britches.

At first I thought he must have been drunk when he wrote it. The language — so extravagant; the self-consciousness — so overwhelming . . . Upon reflection, I think he *was* intoxicated — with his own histrionics. I read this article twice, to try and figure out why on earth he gave up his children. This is a man in love with his own anguish, who is trying to make a tragic masterpiece out of shoddy, selfish and irresponsible behaviour. He calculates and bullies (the vision of him coaching his young wife, herself orphaned, to abandon her infant borders on nightmare), and then he blames everybody and everything else: the agents of the system, Plato, Calvin — anybody at all, but not him, boy — for "absorbing" his children. The quintessential Yankee bargainer, he can't resist telling us the abortion of the third child cost $125.00. The question is not whether he's had a tough time. The question for me is whether he has confronted the moral questions of his own behaviour. Judging from what he's written, Gatto has neither the courage nor the honesty to recognize that he has been, throughout, his own and his children's worst enemy.

I know why my birth mother gave me up. As a woman, now, cognizant of the pressures and moralistic restrictions of the society she lived in, I can understand, love and forgive (and moreover, be glad and grateful for the love of my adoptive parents). I do not understand Gatto. And, while shame is, I suspect, not within his vocabulary, judging from his article, it damn well should be. Not, perhaps, for being the selfish flake he was, but for being the self-aggrandizing flake he still is.

Pat Mayne Ellis
Vancouver, BC

Homebaked superconductors

A high school science class in Gilroy, California has been making high-temperature superconductors. Here's their recipe, which appeared in detail in the July 30, 1987 issue of New Scientist. *All apparatus and ingredients are commonly available, except yttrium oxide, which you'll have to hunt for.* —KK

"Shake 'n' bake" recipe for 1-2-3 ($YBa_2Cu_3O_{7-x}$)

Mix 1·13 grams yttrium oxide, 3·95 grams barium carbonate, 2·39 grams copper oxide
Compact
Grind in mortar and pestle
Bake in air at 950 °C (1650 °F)
Regrind in mortar and pestle
Press into pellets
Rebake pellets in flowing oxygen at 950 °C (1650 °F)
Allow to cool very slowly
Recipe by Heidi Grant

Corrections

*Mistakenly, we gave wholesale prices in our review of the wooden puzzles of the Pacific Puzzle Company (*WER *#56, p. 120). Their retail prices are about 40 percent higher. The xerox art image of the bureaucratic ten-dollar bill we ran anonymously last issue (p. 136) is actually the work of Steve Frenkel, who created it as a print for a 1986 exhibition, "The Fine Art of Making Money." He calls it "The Theoretical Redesign of the Dollar." Quality prints suitable for posting or framing (11 x 14 inches on archival stock), without the word SAMPLE imprinted on them, are available for $5.95 postpaid from the artist: 9695 North Pond Circle, Roswell, GA 30076.*

Gossip

"The Whole Earth War Games are ON. All combatants will muster at 0800 at Whole Earth HQ to work out troop transport and other logistics. Bring personal mess gear for picnic-style lunch. Dress for combat under valley conditions, daytime," read the announcement on the bulletin board posted by Stewart.

Inspired somewhat by last issue's article, "War Games" (p. 78), Stewart arranged for a platoon of Whole Earth crew and friends to invade a dry, hilly ranch about an hour and half south of San Francisco. Four of us with a dozen other friends made a troop of sixteen. Divided into two teams, we would splat each other with grape-size balls filled with paint.

It was an extremely hot day. The field was pure slope. Down into scrub oak thickets, or up steeply through dusty, scratchy grass to two hills, a flag on each. None of us had ever played before. The enemy would be the terrain and heat.

In the first game everyone rushed pell-mell into enemy lines, charged up hills recklessly, and got shot quick. The second game, slowed by exhaustion or caution, was half over before the first round was fired.

Dead on arrival, Stewart Brand and wife Patty Phelan wait out the last stages of a game.

By the fifth game, experienced teams would advance in packs of three, alternatively creeping and pouncing, covering their partners in the distinctive camaraderie infantry is famous for.

It was hard to tell who the heroes that day were. On this large range, a skirmish could happen at one end without the other end knowing about it. Even though there were only sixteen of us, I never ran into Stewart on the field. We did meet once in "heaven," the shaded area you go to when you are dead. When I got there Stewart was already collapsed in a rigor-mortis-like rest. He had a fresh red splat right in the middle of his forehead. It was like a soggy Hindu dot, a bull's-eye centered so perfectly it looked silly. He noticed my grin. "Patty got me. And boy, did she enjoy it."

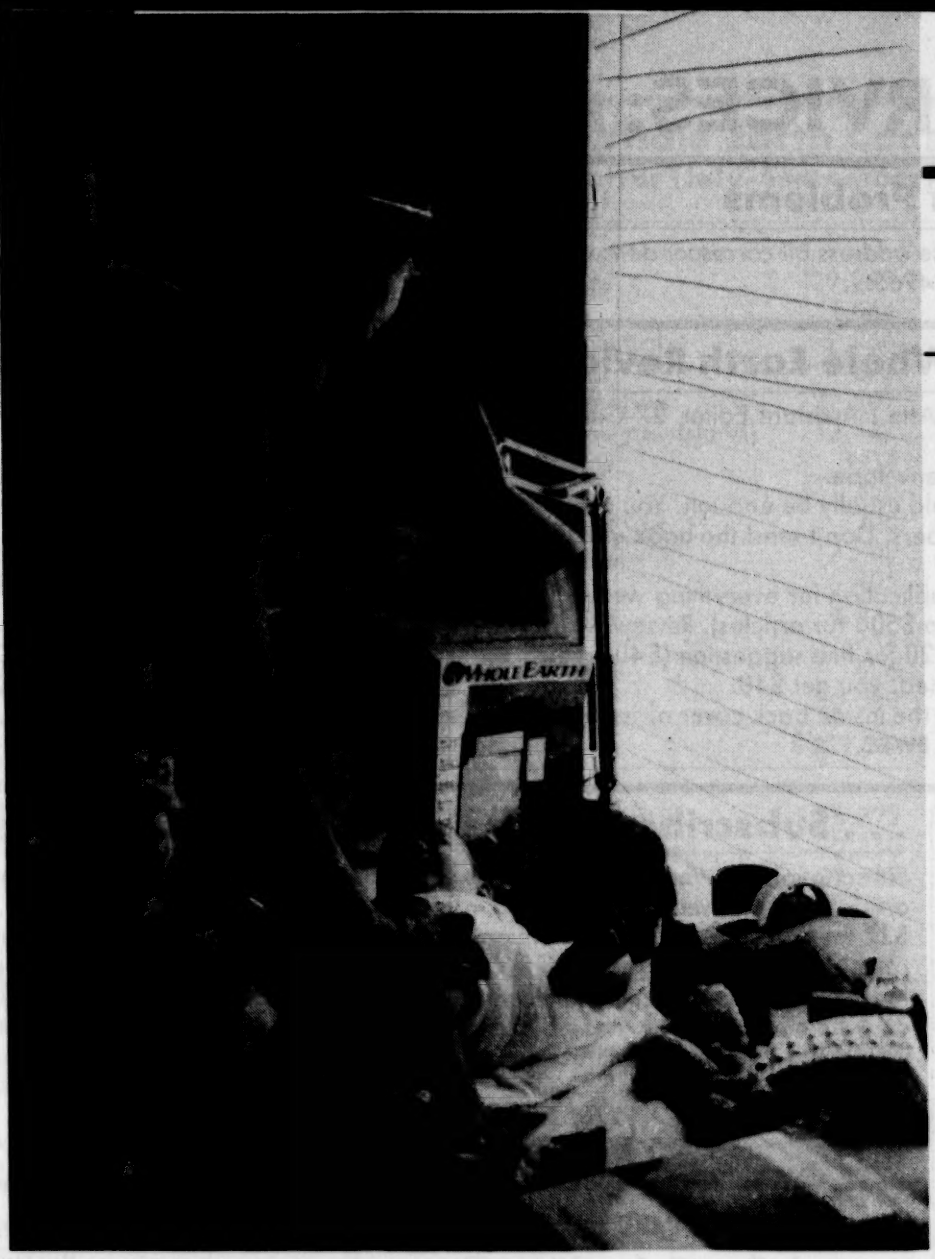
Dick Fugett couldn't make the War Games because of inescapable babysitting duties. He was home with newborn daughter Kerry. For much of her short life, Kerry has wriggled and napped in the offices at 27 Gate Five Road, where babysitting privileges are often passed around during the work day. Three days a week Cindy (bookkeeper), Dick (newsstand sales) and Kerry (potential intern) commute an hour south from their mini-farm "Narrow Acres" near Santa Rosa. Says Dick gleefully as he considers their new family of three, "Now we can drive in the fast carpool lane."

Office babies have been a life-saver for Whole Earth, too. Without encouraging parenting on the job, we would have lost more than one of our bookkeeper/office managers, and have had to suffer the wrenching transition from part-time efficiency to full-time financial confusion. Our office architecture is of the style called "overhearing conversations" so if a crying baby was a real problem, I'd know about it since I overhear dialog in Cindy Fugett's adjacent office and she in mine, and father Dick's office is well within crying distance. An office baby brings nothing but seven pounds of good. I am reminded by the presence of Kerry that 34-year-olds are not the center of the universe, or the Whole Earth.

But since I'm in the center of a conversationally transparent office, I've been taking up former editor Anne Herbert's habit of collecting fragments. Some recent goodies. Don, referring to cosmic physics, "They used to think that infinite was as big as you could get." Kathleen and me talking about a picture of a robot pointing a gun at a car. Me, "That's the future." Kathleen, "I'm glad I'm dying." Don, looking at the Brookstone catalog, — "Susan, do you have undercar fatigue?" Susan — "I don't know." Don — "Well you don't need to worry 'cause here's a creeper to stop it."

By the looks of our financial report, I'm at last free from having to whine about money. Relief came from three directions. I sent around a query to a small selection of charitable people and foundations soliciting funds for Whole Earth's long-term growth. An early, anonymous Maniacal supporter (you know who you are) lent us $20,000 interest-free, to be paid back in two years, so that we could compound our direct mail efforts. This was in addition to a $10,000 interest-free loan for a year from a new supporter responding to Stewart's call for philanthropic advisors. The most heartwarming letters were from readers replying to my sermonette last issue asking for contributions toward a direct-mail outreach. Gifts totaling about $2,000 came in, ranging from tens to hundreds of dollars, always accompanied by a significant personal note. A collective thanks from us to individual yous. Please stand by as we launch into the industrial world of direct marketing.

Seventy-one thousand pieces of junk mail are now headed toward likely candidates for Whole Earth readership. We are testing small groups of names from lists such as: Utne Reader (they use our list often and successfully), Mother Jones, Harrowsmith, Rain, the Sierra Club, the Planetary Society, the Institute of Noetic Sciences, New Options, In These Times, Parabola and seven others. To optimize the response, we're offering the choice to "bill me later." Some time in October the respondents will receive a bill, and their first issue. The cover? You guessed it. "Doing Drag," the gal/guy with the hairy chest. Our hope is that they'll open it up, find themselves more informed than titillated, and



Changing diapers like a pro, Dick Fugett uses a momentarily vacant desk as the nursery room.

pay up. No publishing expert worth his $100,000 a year would endorse a cover like that to be sent as direct mail. And that's what we are selling — a magazine that ignores expert dogma. Those newcomers who perceive that will sign up to be very loyal readers. (To hedge that cocky boldness, we're also sending them the next issue — this one. If they don't go for either, we're out of luck.)

The commercial discipline of the marketplace continues to keep us honest and perplexed. Our fortune is pegged to the Hollywood maxim that "you are never any better than your last film." The last two features we produced, the Whole Earth Software Catalog *and the* Essential Whole Earth Catalog, *were not bestsellers. Our proposal for a book enlarging the weirdness and fun of "The Fringes of Reason" (WER #52) has met with enthusiasm, but no money. The experts say it needs to be a* New York Times *bestseller to cover the cost of making it. Either we've priced ourselves out of the publishing game (possible), or they've priced themselves out of the publishing game by not accepting solid, even sales, instead of boom-or-bust hit parades (probable). Ted Schultz, editor of our special issue "Fringes," is continuing to gather material for a Fringes book, while we explore alternative publishing avenues.*

It's probable that our next publication won't even be a book. It will be an electronic version of the Whole Earth Catalog pressed into plastic as a compact disc. Compact disc readers, playing digital music and computer software and "books" like the Encyclopedia Britannia, *will supercede VCRs as the next consumer gadgetry to covet. If all goes well, the Catalog Disc may be released within a year. "Well" means that the software publisher we are negotiating with remains convinced there is a market, and that the standard technology stays standard. We're betting it will be Apple's Macintosh.*

As I have been working with Apple Computer, Inc., a very corporate corporation at this point, I've been surprised at the number of fanatical Whole Earth subscribers I've met. Mike Leibhold, a manager in the Advance Technology department and our liaison with the HyperCard project (see p. 104), told me he was turned on to technology by Co-Evolution Quarterly *#16 (Winter '77), the Broadcast special issue. Earlier he contributed to the Space Colonies issue (#9, Spring '76). Many of Apple's chief Macintosh programmers subscribe to* WER *as "the one magazine I get good programming ideas from."*

I think their wide interests are reflected in the wide appeal of their invention, the Macintosh. When I'm asked "What computer should I buy?", I have a ready answer, with no qualifications: Get a Mac. It's the only computer that both novices and professionals fall in love with. We have seven of them on loan from Apple, and unlike the dull and clumsy (but cheap!) PC clones, they're finding their way into almost everything we do. As Fabrice Florin, our video reviewer, said, "Ain't it great to be in a PC-free environment?" What he meant was, ain't it great to have computers without having to think like them? Not quite, but we're getting close.

Ken Conner, our former copy editor, was in charge of the care and feeding of the weekly Whole Earth Column in the San Francisco Chronicle *for the last couple of years. The* Chronicle *wooed him away to help care and feed the rest of the paper. Now he's working 3/4-time on their Sunday magazine supplement "This World." He turned the Column over to Jeanne Carstensen, who will hop right onto the job as soon as she finishes the little matter of co-editing this issue. Ken's copyediting job is still up for grabs. It fuses a bunch of other duties into a managing (details) editor role. Serious inquiries only.* —Kevin Kelly

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Point/Whole Earth Consolidated Report:
Third Quarter (July-September) 1987

INCOME	
Subscriptions	$ 129,299
Back issues	1,064
Mailing list rental	7,966
Unclassifieds	676
Direct distribution	22,502
Dell (national newsstand)	13,447
Sales: EWEC	3,114
WESC	252
Best of CQ	106
Syndicated column	7,700
Royalties	405
Contributions	6,657
Interest	734
Miscellaneous	586
Apple project	35,000
Total Income:	**$ 229,508**
EXPENSES	
Salaries: Editorial	$ 15,322
Production	10,360
Circulation	12,589
Office	5,178
Research	2,811
Outside production services	852
Writers/contributors	9,400
Magazine printing	26,664
Subscription fulfillment	12,262
Circulation promotion	22,365
Direct distribution	1,018
Dell (national newsstand)	1,401
Mailing list rental	740
Fulfillment: EWEC	356
Purchases: EWEC	-302
WESC	235
Syndicated column	6,330
Computer networks	227
Apple project	13,032
Insurance:	2,756
Taxes:	
Payroll FICA	6,251
Other	556
Supplies/research	3,141
Equipment rent/maintenance	587
Telephone/networks	1,209
Postage	1,334
Auto/travel	0
Rent/maintenance/utilities	10,201
Legal/professional services	412
Interest/bank charges	1,581
Miscellaneous expenses	396
Total Expenses:	**$ 169,264**
PROFIT/LOSS:	**60,244**

THE THIRD QUARTER *is usually the nadir of our financial health. Which makes our current profit an unusual event. Subscription revenue remained strong as a result of strong renewals (three-year subs continued to come in as a result of our Best of CQ offer); contributions increased as a result of Kevin's letter in issue #56; we collected some past-due accounts receivable from several of our newsstand distributors; and we completed a successful project for Apple Computer. All contributed to improved results.*

I should note that we do have two loans totaling $30,000 that are being used for our direct mail campaign. That money doesn't appear in this report (since it isn't income), but some of the direct-mail expenses have been incurred. The financial results of our campaign should appear next issue. In the meantime, we're trying to keep a fund set aside to pay back the loans with.

Let's hope this positive trend continues.
—Cindy Fugett, Bookkeeper

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INCOME	
Sales	$ 71,630
EXPENSES	
Payroll	25,213
Office	4,461
General/Administrative	10,879
Computer	20,730
Sales	1,067
Other	1,589
PROFIT/LOSS:	**7,691**

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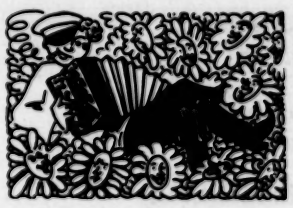

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LORI WOOLPERT: Where are you?
—Susan

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